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TOWARD A THEORETICAL ANALYSIS OF THE DEVELOPMENT
OF AN ECONOMICS CURRICULUM

by



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A THESIS

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies for acceptance, a thesis entitled, "Toward a Theoretical Analysis of the Development of an Economics Curriculum" submitted by Robert John Pinney in partial fulfilment of the requirements for the degree of Master of Education.

ABSTRACT

Conceived originally out of an awareness of two basically irreconcilable positions with respect to the teaching of economics to children of grades lower than those of the senior high school, the present study represents an attempt to develop a theoretical basis for the development of curricula.

In Victoria (Australia), economics is not taught to grades below the fifth year of high school, whereas in North American schools students at the grade one level are involved in programs that incorporate the basic concepts of the discipline.

In order to evaluate the position in the former case, the present study involved the development of two sets of criteria, in particular, a philosophical context and a psychological context. Given that end of education which places greatest priority upon the recognition and refinement of the child's intellect, an appropriate philosophical context was developed. The position taken by educators in Victoria, it was concluded, was not supported by any explicit expression of such a philosophical basis. Post hoc arguments supporting the teaching of economics included the reference to objectives that relate to responsible citizenship, vocational needs, intellectual training, preparation for tertiary education, and enjoyment. The educational end of intellectual pursuit, it was concluded, was accorded very low priority.

A psychological context was developed, which in particular, gave expression to the nature of the intellect as possessed by the 11-12 year old child. The Piagetian approach to the study of analytical

thinking (in its broadest sense an integral aspect of the intellect) was found to be an appropriate base upon which to develop a psychological context within which to consider proposals relating to curriculum design. Given, in particular, Piaget's finding that the 11-12 year old child is capable of analytical thinking and abstraction, a criterion was established by which an assessment of the rationale adopted in Victoria could be undertaken. That rationale was also found to be substantially inadequate. Indeed, no formal psychological premise whatsoever was adopted by the educator in Victoria with respect to the teaching of economics to grades lower than grade eleven. Virtually, no attempt was made to recognize the cognitive abilities of the student of any age level in Victorian schools.

Given a commitment to the development of a learning environment that caters for intellectual endeavour, the educator will be required to develop means by which the child's powers of cognition may be measured and, also, means by which such data may be readily translated into the structuring of appropriate learning environments. To this end, the present study incorporates a pedagogical context; one that recognizes the child's refinement of his intellect as the focus upon which curricular decisions are to be centered. Given the ideal of individualized instruction and evaluation, the present study incorporates a basic rationale upon which appropriate evaluative procedures that measure, direct, and monitor individual performance may be developed.

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CHAPTER I

INTRODUCTION

The development of new curricula in the social and physical sciences during the last decade has been substantial. However, critical analysis of the bases upon which the new curricula have been designed is still necessary.

Differences in the nature of programs for the teaching of economics in secondary school are such that in Victoria (Australia) the subject is taught at the grade eleven and twelve levels, whereas in North America there appears to be a trend toward the teaching of economic concepts to children in the first years of their schooling.

I. STATEMENT OF THE PROBLEM

Primarily, the present study represents an attempt to develop a philosophical-psychological context upon which to develop a pedagogical focus that may serve as a rationale for the design of an economics curriculum.

Secondarily, the present study represents an attempt to identify and evaluate the positions taken by educators in Victoria (Australia) with regard to the teaching of economics in secondary schools.

II. NEED FOR THE STUDY

In the United States of America in particular, and to some extent in Canada, economic concepts are now being taught in elementary schools. Traditionally, economics has not been offered to students

until the later years of senior high school. Given that the subject will assume an increasingly more important position as one of the social sciences taught in school, that position should be analysed with regard to whether or not it is an appropriate discipline to be learned at a particular age level.

A further, more general need for the study, however, arises out of the observation made by contemporary (and past) scholars, and that is the failure of the school situation to cater for the essentially individual character of the child's intellectual potential. It is important, therefore, to analyse the nature of the intellect in terms that are readily translatable into a curriculum design. That this aspect requires the development of a rationale upon which to structure the design of curricula, is also recognised in the present study.

III. DEFINITIONS

Form 1: In Victoria (Australia), this grade level is the equivalent of Grade 7 in Alberta (Canada).

Level of Prior Mastery (L.P.M.): The level of understanding of a particular economic concept demonstrated by the student in responding to the items on the Validated Prior-Evaluation Instrument.

The Validated Prior-Evaluation Instrument: An evaluation instrument to be developed for the purpose of pre-testing a student's mastery of basic economic concepts before formal instruction in economics. This instrument may also be referred to as an L.P.M. Instrument.

Level of Difficulty: The stage up to which the child is able to correctly respond over a number of items (as developed for each

economic concept, and presented on the Validated Prior-Evaluation Instrument) which range in difficulty from simple and concrete to complex and abstract.

Exogenous determinants: Those factors which have traditionally influenced the design of the curriculum, but which have hindered the catering for the optimum development of the individual child's intellectual potential.

Kit-Curriculum Corporation Alliance: That section of industry which has concentrated upon the production of packaged materials and curricula, and which has influenced the nature of the learning situation in the school in ways contrary to the objective of catering for the development of the individual child's intellectual potential. (An example of an exogenous determinant).

Leaving Economics: In Victoria (Australia) this grade level at which the subject is first taken is equivalent to Grade 11 in Alberta (Canada).

V.C.T.A.: Victoria Commercial Teachers' Association (Australia).

S.S.E.C.: Social Science Education Consortium.

J.C.E.E.: Joint Council on Economic Education.

Curriculum-embedded test (CET): A test to measure those behaviors that are integral objectives of an instructional sequence.

The Scope of the Study

The elements associated with, and the scope of the present task are indicated by Figures 1-6. In an attempt to convey the direction and purpose of the present study and subsequent research interests, Figure 1

is included. The present study has been conceived as representing a basic rationale upon which to base future research relating to the development of curricula. The Figures that follow are intended to represent more detailed clarifications of the elements shown in Figure 1.

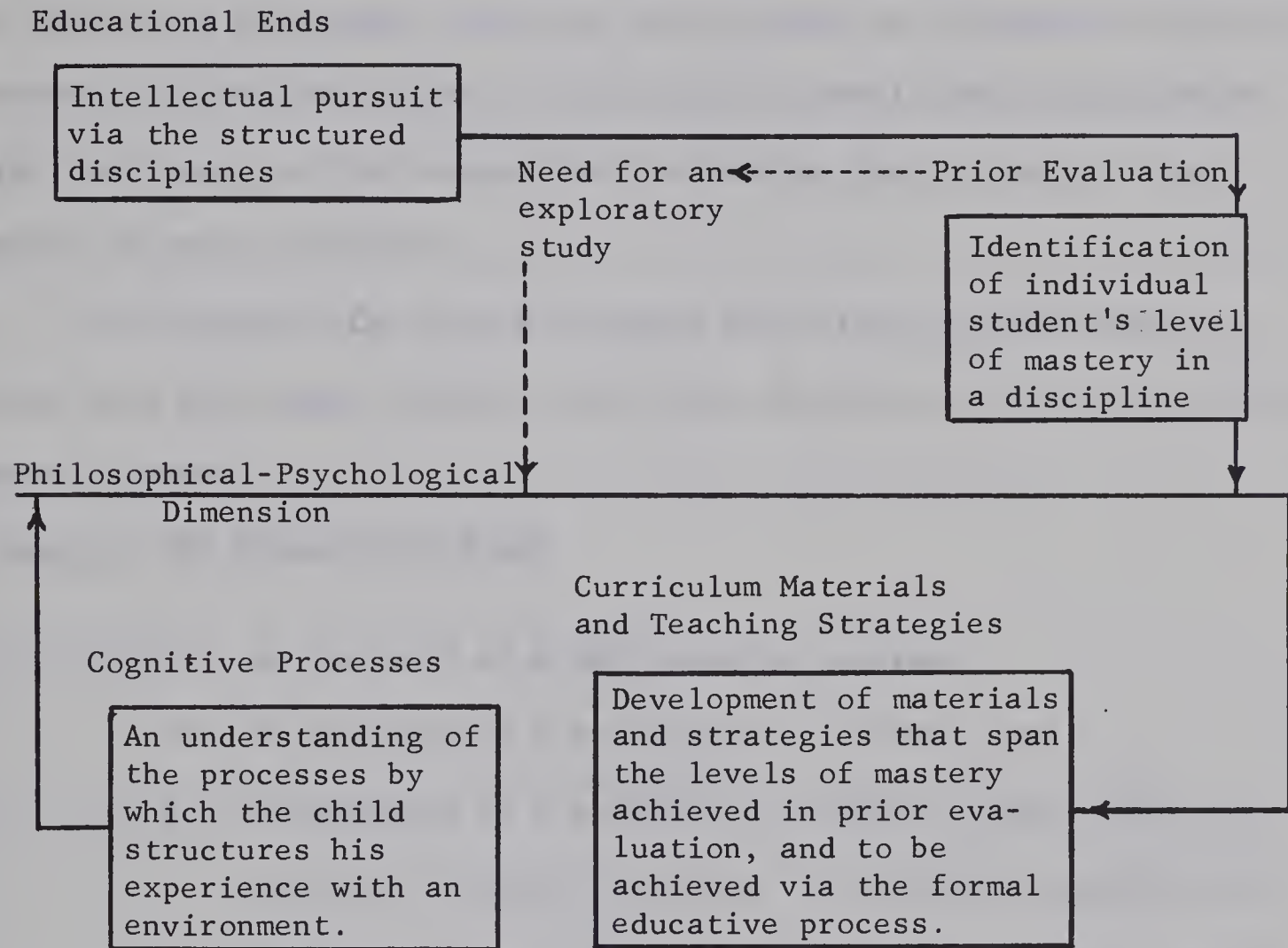


FIGURE 1

SCOPE OF THE LONGER-TERM STUDY

The writer has, in the field of curriculum development, become aware of certain disturbing aspects of a trend in education which relates to the fact that earlier grades are now becoming involved in such fields as physics, chemistry, and others of the "hard sciences," that

have, by tradition, been the domain of the senior high school or university. The teaching of economics--perhaps the most disciplined of the social sciences, and traditionally considered "too difficult" for students of grade levels lower than those of the senior high--has also been characterized by such a trend in North America. It will suffice to mention at this point, that one is disturbed by the apparent lack of concern for the development of curricular proposals that bear substantial complement to that educational philosophy that recognizes the nature of man's intellect.

The longer term study with which the writer is concerned, relates to a four stage analysis, the first of which is the domain of the present thesis.

Stages in the Longer-term Study

1. (a) An analysis of a philosophical context,
(b) An analysis of a psychological context, and
(c) An analysis of a pedagogical context, within which to consider the appropriateness of teaching economics at the Form 1 level (Grade 7). Special reference is made to the Form 1 level in Victoria (Australia). This level is essentially equivalent to the Grade 7 level in Alberta (Canada). The over-all argument, as it is developed in the study, applies so far as can be judged, in each case.
2. An initial exploration of the level of mastery of basic economic concepts, as possessed by students at the Form 1 level.

3. The development of an instrument by which prior levels of mastery of basic economic concepts, as possessed by Form 1 level students, may be identified.
4. An analysis of the means by which materials and teaching strategies, that appropriately span the levels of concept mastery previously identified, may be developed.

As indicated previously, the concern of the present thesis is with the three aspects of the first stage, although the basic rationale for the second and third stages has been developed, and is incorporated in the section relating to the development of a pedagogical context.

The dimensions of the necessary decisions relating to the development of a philosophical context are indicated by Figure 2.

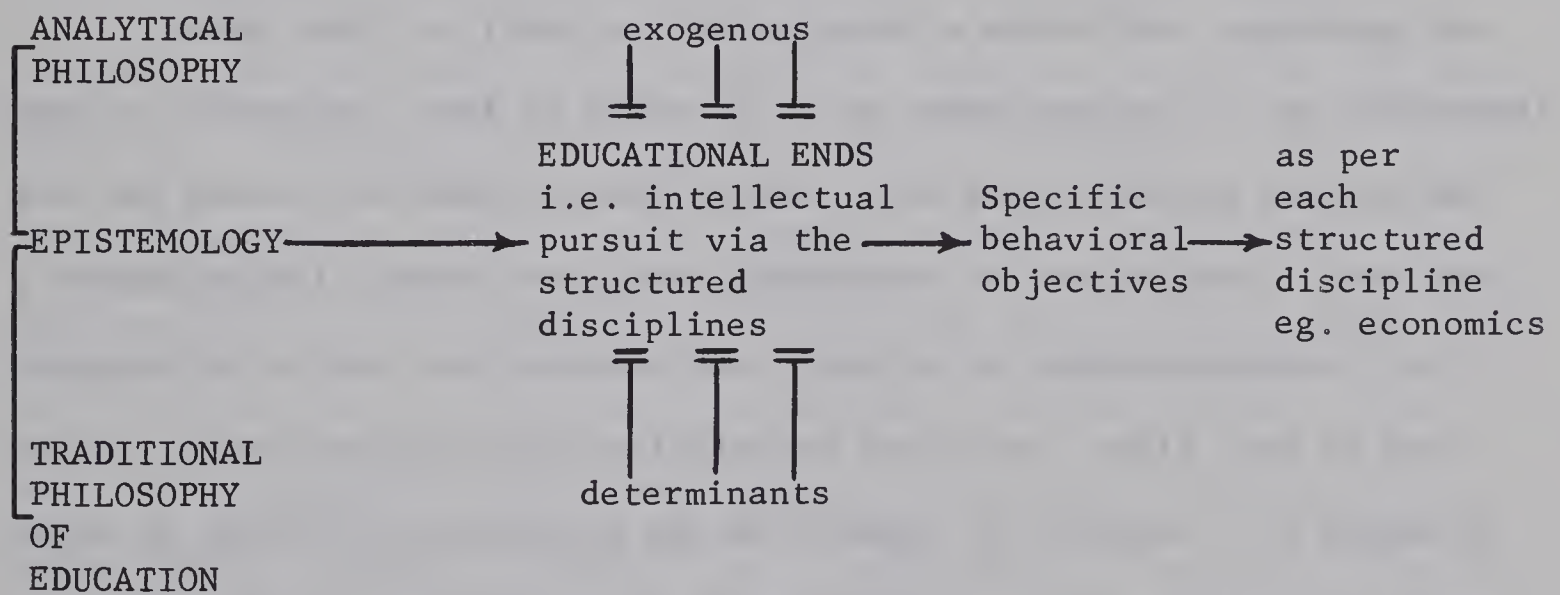


FIGURE 2

A PHILOSOPHICAL CONTEXT

Even limited involvement with the philosophical notions that pervade education initiates the need to feel a sense of impatience

on the one hand (since it would seem that Dewey, for instance, was writing in 1970 and not in 1897 or 1915), and on the other, a need to insist on a tighter denotation of the parameters of those notions. Such exogenous determinants, as for instance the business world or the corporations that produce the packaged kit-curriculums, must not be allowed access to the intrinsic relatedness that (it is--as it must be--decided) shall exist between the educational ends and the philosophical considerations out of which they were conceived. Maintenance of the desired chastity of educational ends within the context of the specific behavioral objectives can only--it is to be argued--be achieved via the establishment of a learning situation that incorporates the syntax and substance of the structured disciplines, of which economics is certainly an example.

Given that the focus of the educator's attention regarding the ends of education must be directed at an understanding of the Individual and the desire for intellectual pursuit, the philosophical context and a psychological context must bear complement to one another. Thus the integration of the two contexts must involve an understanding of the nature of the intellectual abilities of the Form 1 child, and of the means by which that potential may be brought to fruition. In Figure 3 it is noted that the refinement of the individual's intellectual potential (at the Form 1 or Grade 7 level) will in particular require of the educator an understanding of the Piagetian findings relating to the stage of formal operations--a stage upon which the 11-12 year old child is at the threshold.

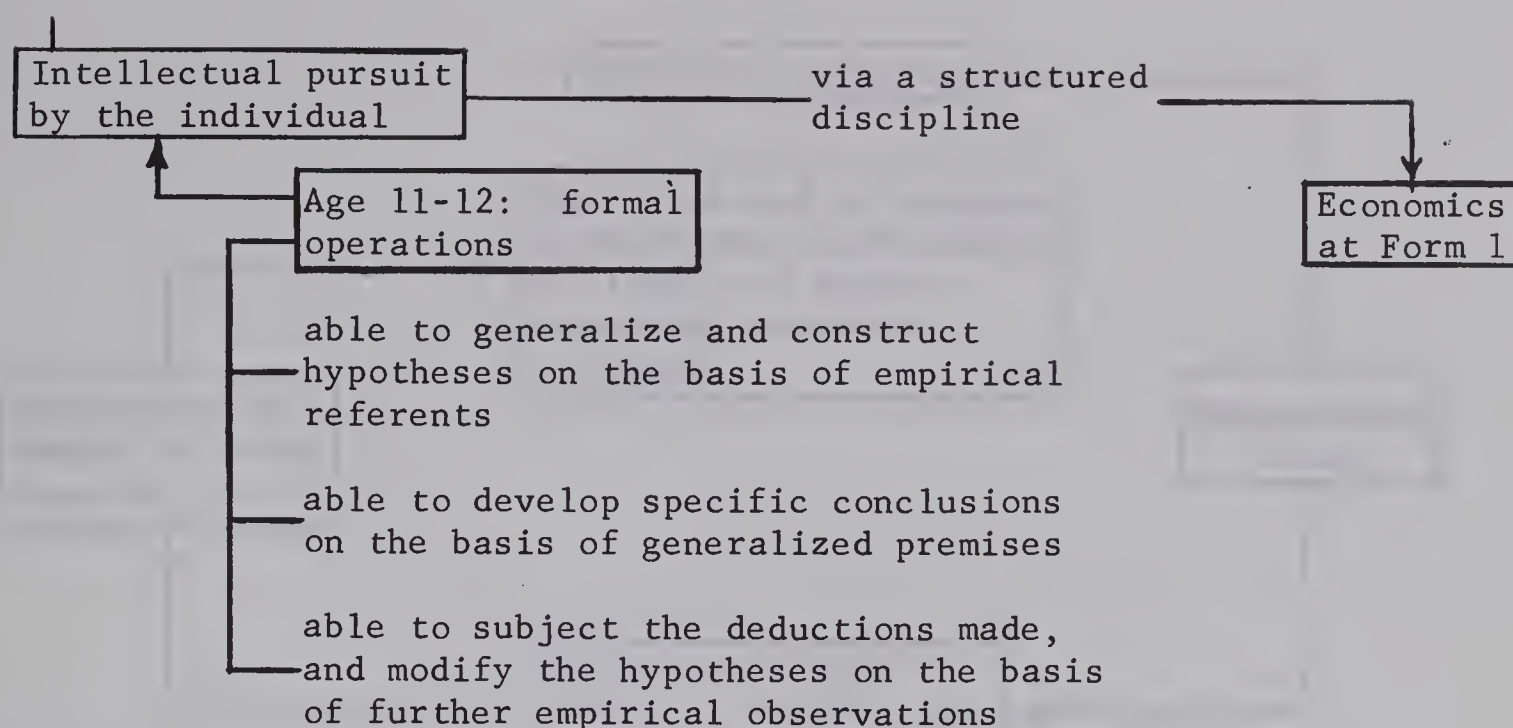


FIGURE 3

A COGNITIVE DIMENSION

This cognitive dimension, which establishes a particularly pertinent base upon which to develop appropriate curricula, looms to dramatic importance when it is considered that the concept of structure relating to the notion of disciplined fields of inquiry, and the concept of structure as it relates to the cognitive domain, both give rise to fundamentally similar implications for the nature of the curricula. The work of Bruner is, of course, quite pertinent in this respect, along with that of Schwab, whose understanding of the nature of the disciplines is particularly relevant. It is argued, then, that economics is indeed a valid means by which the ends of education may find expression.

A reference to the concept of a discipline provides the integrative link necessary for the development of a pedagogical context, and in Figure 4 the aspects considered to bear relevance are outlined.

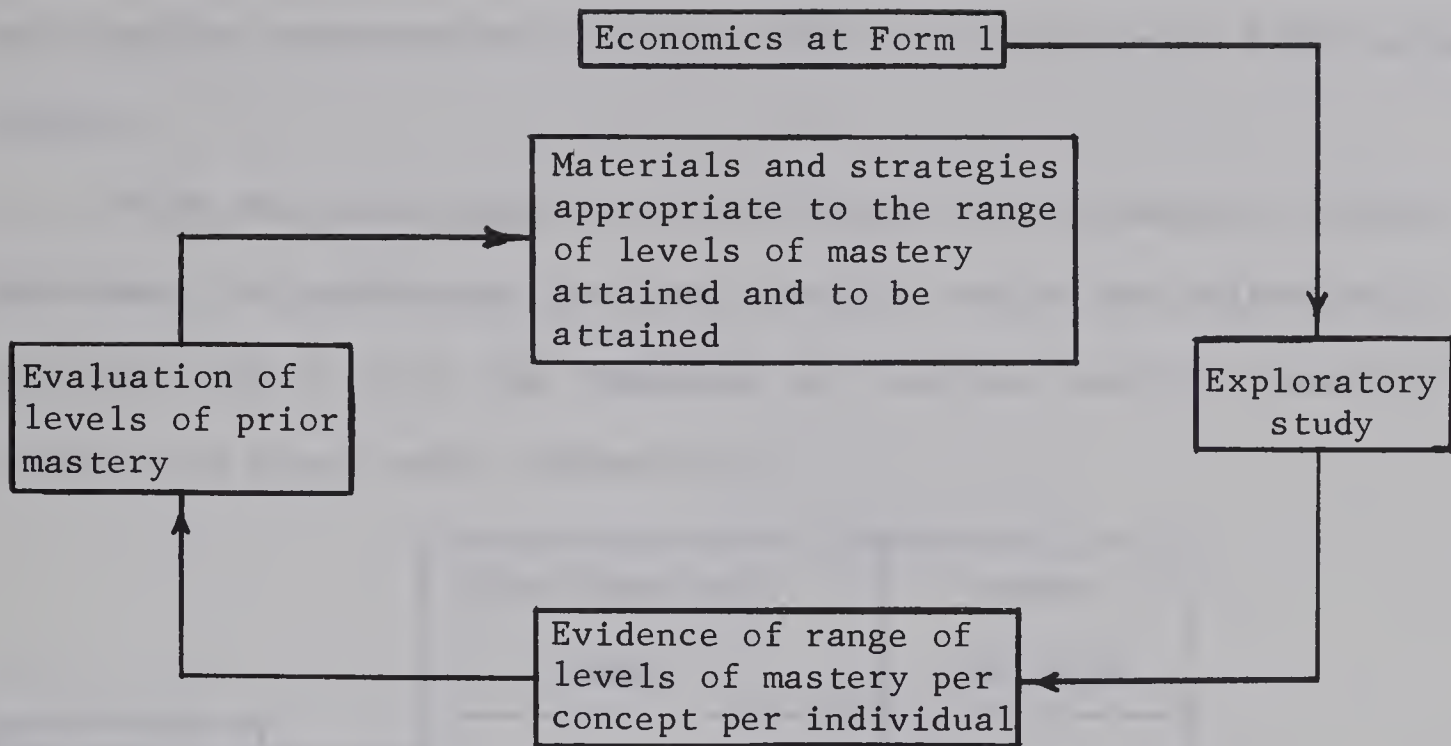


FIGURE 4

A PEDAGOGICAL CONTEXT

Essentially, the logic of the rationale indicated in Figure 4, is such that, in order to cater to the individual differences of students, some evaluation of the students' levels of prior mastery of the basic concepts is of paramount importance. How else can a teacher employ teaching strategies that are appropriate to the child's possessed degree of mastery? How else can the teacher direct the student to the use of materials that are also appropriate to his or her present state of mastery? Although a late-comer, the tendency is toward the development of evaluative devices that are as diverse as the individuals involved. Given that economics is chosen as one of the disciplines to be incorporated in the school program of studies, an initial exploratory study should reveal general evidence of student mastery of economic concepts. With such evidence, fairly sophisticated evaluative devices may then be developed in order to specify more accurately, the level of

prior mastery possessed by each individual student for each basic economic concept.

With the development of a valid Level of Prior Mastery (L.P.M.) instrument, an appropriate learning situation may be more effectively structured and it is in the remaining two diagrams that this underlying rationale is given basic expression.

| | ITEM DIFFICULTY | CORRECT |
|--------------|-----------------|----------|
| | RANGE | RESPONSE |
| CONCEPT No.1 | A | + |
| | B | + |
| | C | + |
| | D | |
| | E | |
| | F | |
| | | L.P.M.* |

* LEVEL OF PRIOR MASTERY

FIGURE 5

THE VALIDATED PRIOR-EVALUATION INSTRUMENT: CONCEPT NO.1, STUDENT A

In Figure 5, it is assumed that a valid instrument has been administered and for the Student A it is noted that he recorded a correct response for each of the items A, B, and C that related to the testing of his understanding of Concept No.1. Items D, E, and F represent more difficult problems relating to the same basic concept. If indeed a correct response is not recorded for item D, for instance, then, prima facie, it is inappropriate to structure a learning situation with accom-

panying materials and strategies at a D-level of difficulty. Equally obvious is the notion that such a learning situation should not be structured according to an A or B level of difficulty, if the student has recorded correct responses at the higher level of difficulty C.

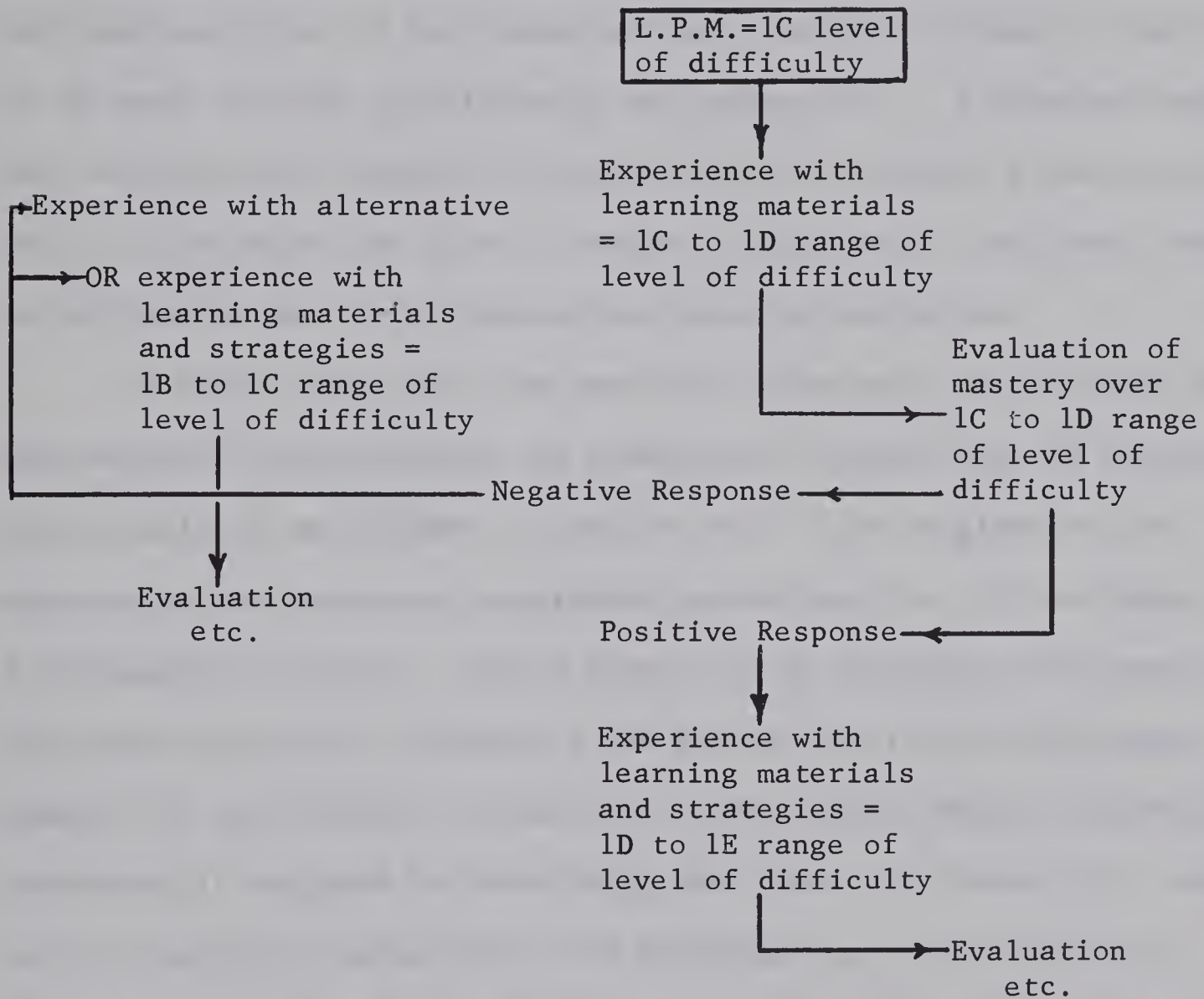


FIGURE 6

L.P.M. AND THE LEARNING SITUATION
CONCEPT NO.1, STUDENT A

Thus if a learning situation is structured for Student A at the 1C level of difficulty, it will (as is noted in Figure 6) require a concentration of materials and strategies that are appropriate over a 1C to

1D range with, of course, no exclusion rendered to those materials and strategies over the 1A to 1B range, should they be considered pertinent in particular instances. Formative evaluation, therefore, for Student A, will involve equally appropriate means over the 1C to 1D range of difficulty, with a positive response indicating the need to structure a new learning situation with materials and strategies pitched at the 1D to 1E range of level of difficulty for concept No.1. A negative response will alternatively require the structuring of a learning situation over the 1C to 1D and/or the 1B to 1C ranges of difficulty, and these should be followed by the use of appropriate means of evaluation.

In broad terms, then, the task to be undertaken is such that the philosophical, psychological and pedagogical contexts bear an intrinsic relationship to one another. Attention will first be given to the analysis of the parameters considered appropriate for the development of a philosophical context. Whilst Chapter II is concerned with general philosophical notions relating to the task of curriculum development, Chapter III incorporates a summation of those philosophical foundations traditionally employed in undertaking that task. In Chapter III, those factors considered exogenous to the determination of curricular proposals are outlined, and these are followed by an identification and evaluation of the philosophical bases considered important with regard to the teaching of economics in secondary schools in Victoria (Australia).

Chapter IV represents an attempt to develop a psychological context. Here, too, the position taken by educators in Victoria (Australia) is assessed in terms of that context.

In Chapter V, a pedagogical context is developed. An attempt is made to translate the previously developed philosophical-psychological rationale into one that may be appropriate for practical application in the teaching of economics.

Conclusions and recommendations for further study are outlined in Chapter VI.

CHAPTER II

TOWARD A PHILOSOPHICAL CONTEXT

General Philosophical Notions

There is always a danger that educational questions will be discussed in terms that have lost some of the meaning they had when the questions were last framed for final answer. The context of fact and opinion changes, and terms need re-examination, if not re-definition, lest discussion be fruitless. Especially is this so at times when answers are sought to the perennial question of what is to be taught.¹

The re-examination and re-definition of terms encompasses the core of the role of the analytical philosopher, and their criticisms of traditional philosophers of education are pertinent in this respect. Passmore² quotes Scheffler as describing the task of the analytical philosopher as one in which "single problems" are handled in a "piece meal fashion," due to a "unanimous distrust of large generalizations about the Universe."³ The citation of the following passage quoted from O'Connor, will indicate the major objection to the traditional philosophers of education, the one which necessitates the incorporation of an analytical dimension to the following discussion:

Often indeed, if we look critically at the uses of phrases like 'the philosophy of education', 'the philosophical basis of education', 'philosophical presuppositions of educational theory', and so on, it becomes clear that they are no more

¹E.L. French, "The Problem," in E.L. French (Ed.), Melbourne Studies in Education, 1963. (Parkville: Melbourne University Press, 1964), p.3.

²J.A. Passmore, "Analytical Criticisms of Traditional Philosophies of Education," in E.L. French (Ed.), Melbourne Studies in Education 1965. (Parkville: Melbourne University Press, 1966), p.44.

³Ibid., p.41.

than vague though high-sounding titles for miscellaneous talk about the aims and methods of teaching. Such usages could well be dropped in the interests of clarity.⁴

Proponents of a curriculum steeped only (for example) in an interpretation of Whitehead's ideas, may base much of the theme of their interpretation(s) on the following passage:

Culture is activity of thought, and receptiveness to beauty and humane feeling. Scraps of information have nothing to do with it. A merely well-informed man is the most useless bore on God's earth. What we should aim at producing is men who possess both culture and expert knowledge in some special direction. Their expert knowledge will give them the ground to start from, and their culture will lead them as deep as philosophy and as high as art. We have to remember that the valuable intellectual development is self-development, and that takes place between the ages of sixteen and thirty.⁵

Not that there is not much value in the metaphysical approach to the task of exploring ideas in education (as Gibson⁶ has demonstrated) but, to be not tempted to treat fragments as ends in themselves is to be committed to an approach that results in much ambiguity and illogical inconsistency, and, therefore, in misinterpretation. Certainly the treatment of a fragment should not be the end. However, to avoid misinterpretation when implications are being considered, strict "definition"--or more correctly "use--of a term must be an end in itself at the outset. A closer examination of Whitehead's statement will serve to illustrate the potential for misinterpretation that may

⁴Ibid., p.44.

⁵A.N. Whitehead, Aims of Education. (New York: The Macmillan Co., 1959), p.1.

⁶A. Boyce Gibson, "A Metaphysician looks at Education: A.N. Whitehead," in E.L. French (Ed.), Melbourne Studies in Education, 1965. (Parkville: Melbourne University Press, 1966)

accrue to the developer of curricula based on such a theme.

In the first place, we may ask whether culture is to be defined as "activity of thought" and "receptiveness to beauty and humane feeling." Is "activity of thought" the same as "receptiveness to beauty and humane feeling?" It is quite obvious that already--without considering the complexities of each of the concepts: "activity", "thought", "activity of thought", "receptiveness", "beauty", "humane feeling"--the scope for misinterpretation is rather extensive. And, noting the statement: "Scraps of information have nothing to do with it," one may legitimately ask, "To do with what?"--"activity of thought", "beauty", "culture?" Should one accept the statement "literally" or not? If such "scraps" have "nothing to do with it" (say "activity of thought"), how can "we" produce a man who possesses "expert knowledge" in any "special direction?" (whatever that means!). How will such men be given "the ground to start from?" But more importantly, to be guided by Whitehead's last statement in the above quotation. would lead the development of curricula far into the realm of confusion and misinterpretation. It appears that "valuable intellectual development" (one of course wonders what could possibly be worthless in this context, but then we are unaware of the meaning attached to "intellectual development"--is it "receptiveness to . . . humane feeling?") is to be equated with the concept of "self-development." And if that takes place "between the ages of sixteen and thirty," then the development of curricula for the secondary school up to say Grade 10 should avoid the intellectual domain--at least the "valuable" intellectual domain.

The present writer acknowledges that the Whitehead quotation has been extracted from the context not only of the chapter concerned, but of the book, and indeed of his writings. However, it is suggested that the need for strictness of and adherence to definition of terms has been illustrated by the process of statement fragmentation. Such generalizations about the universe, in the light of the pluralistic nature of present-day society, must surely be distrusted. But at the same time, the investment that such writers make to the pool of ideas and thought-provoking concepts--as in the particular case of John Dewey--has surely provided the analytical philosopher with at least a dimension or theme upon which to analyze meaning and logic.

One must, therefore, in considering conceptual questions, be concerned with the actual and possible uses of the words used in the development of a particular argument or context. The words "individual", "intellectual" and "potential" have a central place in the philosophical context to be developed in the present study. It is not a task of defining these words per se but rather, it is one of analyzing the concepts in terms of their uses and applications. The primary assumptions that one makes when developing a context, serve as the focus of the application of such terms.

For instance, if a primary assumption may be stated thus: that an aim of education should be the structuring of learning environments that will enable the individual student to optimize the development of his intellectual potential, then the questions of concept that arise are given a general focus. A valid task, of course, is simply the analysis of each component concept without regard to such a general focus, but

since the present study is of the type that has incorporated such a unifying theme, the task of analysis must bear relevance to it. And so, the concept "intellectual potential," will require analysis in terms of its relation to the theme. So as Wilson notes:

Questions of concept, then, are not questions of fact: nor are they questions of value: nor are they questions concerned with the (italics in original) meanings of words, or the (italics in original) definitions of words.⁷

Knowing what such questions of concept are not concerned with is important. What they are may be stated as follows:

. . . when we deal with questions of concept, we are asked to become aware of the significance of our words.

 We are asked to, as it were, become self-conscious (italics in original) about words which hitherto we had taken for granted.⁸

This is the point made by French above, and so far as the present study is concerned it is the *raison d'être* for incorporating some of the techniques used by the analytical philosopher. They are used to assist in developing the dimensions of the symbols (words) used by the traditional authors of ideas in the field of education. In the establishment of the theme of the task, one immediately injects a value judgment in so far as it was this theme chosen and not that theme. This is obviously legitimate, but it must be subjected to trial by analysis, and it is in this respect that analytical techniques have been incorporated. It is not so much an analytical study, as a study that incorporates analytical techniques. And this is indeed important. We

⁷ J. Wilson, Thinking with Concepts. (Cambridge: Cambridge University Press, 1966), p.11.

⁸ Ibid., p.14. (The sequence of these sentences has been reordered).

should note Passmore on this aspect of how prescriptive the philosopher should be in relation to what should be taught in school, and when, and how, etc.:

Indeed, there would be general agreement among analytical philosophers of education that philosophy cannot give us answers to this kind of question. For these are questions of policy, questions about what we ought to do, and whatever the precise character of philosophical assertions, so it is argued, one thing is certain: they make it clear to us what we are saying and doing. They do not tell us what we ought to say and do. And from statements of this sort it can never be deduced what ought to be said or done.⁹

Of particular importance also, is the following statement:

The philosopher can determine what it means to talk of education as 'having aims,' or under what circumstances we have grounds for asserting that something ought to be done; but he cannot tell us what the aims of education are, or what we ought to do in any particular situation. . . . 'Traditional philosophers of education wrongly suppose that it is the philosopher's task to determine what ought to be done, or what objectives we ought to pursue.'¹⁰

Passmore¹¹ in a second lecture, cites six aspects of the general question of the relevance that philosophy has to education. These aspects relate to (1) "a theory of critical discussion," (2) "the different forms which critical discussion takes, as it has been developed in different disciplines," (3) "the analysis of special concepts . . . (such as) . . . learning, teaching, examining, understanding," etc., (4) "certain areas of enquiry, which present special difficulties" to the philosopher such as "ethics and social philosophy," (5) "the formulation of policy," and (6) the direction of philosophical

⁹Passmore, op.cit., pp.54-55.

¹⁰Ibid., p.55.

¹¹J.A. Passmore, "Towards an Analytic Philosophy of Education," in E.L. French (Ed.), Melbourne Studies in Education, 1965. (Parkville Melbourne University Press, 1966), p.55.

criticism of the means-ends relationship within the concept of "aims of education," around which "many educational controversies turn. . . ." ¹²

The present context will be particularly concerned with the last of these aspects, (although aspects (1) and (3) are quite pertinent also), for it is in relation to this aspect that epistemological considerations assume perhaps their greatest significance, and it is at this point that one should introduce John Dewey's notion that "education offers a vantage ground from which to penetrate to the human, as distinct from the technological significance of philosophic discussions." ¹³ Dewey notes further:

The educational point of view enables one to envisage the philosophic problems where they arise and thrive, where they are at home, and where acceptance and rejection makes a difference in practice. ¹⁴

Indeed the significance of the relationship between the philosophy of education and epistemology is indicated in Passmore's lecture thus:

So far from the philosophy of education being an application of epistemology, it now appears that epistemology is, in large part, identical with the philosophy of education as, of course, John Dewey had also suggested when he wrote, certainly in exaggeration, that 'philosophy may even be defined as the general theory of education.' ¹⁵

It seems therefore, that the procedure as outlined in Figure 2 is legitimate, if it is restated thus:

¹²Ibid., pp.75-77.

¹³J. Dewey, Democracy and Education (New York: The Macmillan Co., 1966), p.328.

¹⁴Ibid.

¹⁵Passmore, op.cit., p.72.

1. it is valid to contend that the formulation of educational ends must be conceived in part, out of an understanding of the issues involved after those issues have been subjected to the critical, analytical techniques of the philosopher.
2. the initial selection of educational ends that are to be subjected to critical analysis, may be drawn from the ideas of the traditional authors.
3. any "universal generalizations" that form the portent of the educational ends must be of the form that are testable.
4. an epistemological bent to a critical discussion is valid from both the traditional and the analytical philosopher's standpoint; and such a bent is a necessary prerequisite to the formulation of educational ends.

It seems useful and pertinent to begin the development of the philosophical context by referring to a number of statements that have provoked the writer into exploring his primary assumption--that an aim of education should be the structuring of learning environments that will enable the individual student to optimize the development of his intellectual potential.

The pertinence of the following statements is obvious. The fact that they have been ignored is deplorable. But they must be repeated; they must be re-examined; they must no longer suffer the fate of lip-service and misinterpretation.

In 1902 Dewey deplored the subdivision of "each topic into studies; each study into lessons; each lesson into specific facts and formulae," and the fact that "emphasis is put upon logical subdivisions and

consecutions of the subject-matter."¹⁶ And further, Dewey notes:

Problems of instruction are problems of procuring texts giving logical parts and sequences, and of presenting these portions in class in a similar definite and graded way. Subject-matter furnishes the end, and it determines method. The child is simply the immature being who is to be matured; he is the superficial being who is to be deepened; his is narrow experience to be widened. It is his to receive, to accept. His part is fulfilled when he is ductile and docile.¹⁷

This was not written in 1970, yet how pertinent a description it is of present day formal educational institutions. Defiantly, Dewey reminds us that:

The child is the starting-point, the centre, and the end. His development, his growth is the ideal. It alone furnishes the standard. To the growth of the child all studies are subservient; they are instruments valued as they serve the needs of growth.¹⁸

And reverting for a moment to his abhorrence of the deification of the subject-disciplines, Dewey notes that:

There is no subject that is in and of itself, or without regard to the stage of growth attained by the learner, such that inherent educational value can be attributed to it. . . .
There is no such thing as educational value in the abstract.¹⁹

If intellectual pursuit is to be considered a valid educational experience, such reverence for the worth attributed to the consumption of a "diet of predigested materials"²⁰ is quite meaningless and in-

¹⁶J. Dewey, The Child and the Curriculum. (Chicago: The University of Chicago Press, 1902), p.8.

¹⁷Ibid.

¹⁸Ibid., p.9.

¹⁹J. Dewey, Experience and Education. (New York: The Macmillan Co., 1938), p.46.

²⁰Ibid., p.47.

appropriate. Indeed, such a justification as preparation for an adult, or college life, is "a treacherous idea" and is this not the import of the following notion?

Particularly in a young country, like Australia, each generation must dedicate itself to the task of leaving the nation and its society the better for having belonged to it. Such an ideal and a dedication will not be achieved by a generation of passive citizens. The school must supplement the role of the family in the formation of good citizens, and each subject taught in the school must contribute its share in the formation given by the school. It is in this context that we must view our aims in teaching Leaving Economics.²¹

Of course, in intent, the notion is not (too) "treacherous," but in its potential for being misinterpreted or misunderstood and subsequently related to educational practice, the outcomes must surely be suspect. Whatever the concept "good citizens" is meant to represent, one must surely question its validity as a tenet upon which to base the inclusion of a particular subject in the curriculum. And note that it caters for the belief that the subject itself has something to "contribute" along with the school. Is this not looking at education a little too far into the abstract?

And this is an appropriate stage at which to identify that whole set of notions which have besieged our thought and, thus, have become the very bedevilment of our striving to consider the case of the child. After all:

It is his present powers which are to assert themselves; his present capacities which are to be exercised; his present attitudes which are to be realized. But save as the teacher

²¹Bro. P.F. Ryan, "Why teach Leaving Economics?" General Journal of The Victorian Commercial Teachers' Association, Vol.6, (Dec. 1965), p.18.

knows, knows wisely and thoroughly, the race-expression which is embodied in that thing we call the Curriculum, the teacher knows neither what the present power, capacity, or attitude is, nor yet how it is to be asserted, exercised, and realized.²²

Monroe,²³ in his article "Pawns Against the Devil," cites that familiar list of objectives of education--namely the Cardinal Principles of Secondary Education--and regrets that it "reads like a charter of a rather stuffy youth club with a strong bias towards muscular Christianity."²⁴ Dewey wrote of the Case of the Child in 1902, yet in 1963 Monroe exemplifies how incredibly deaf the educator (whoever that is!) has been, in the following statement:

In the enlightened twentieth century, it appears the child is no longer a mind to be trained. Instead he is a character to be moulded, a barbarian to be tamed (socialized), a foreign body to be assimilated, a personality to be adjusted. He is to be integrated, made aware of his cultural heritage, firmly grounded in the spiritual values of our way of life, guided into 'wholesome and worthwhile social relationships', imbued with loyalty to ideals of civic righteousness'. In short he is to be saved from the Devil. Or, making it even shorter, he is to be got at.²⁵

Is it not totalitarian to manipulate children as pawns and pieces against the Devil? Huxley aptly counters:

The greatest triumphs of propaganda have been accomplished, not by doing something, but by refraining from doing. Great is the truth, but still greater, from a practical point of view, is silence about the truth.²⁶

²²J. Dewey, The Child and the Curriculum, op.cit., p.31.

²³D.H. Monroe, "Pawns Against the Devil," in E.L. French (Ed.), Melbourne Studies in Education, 1963. (Parkville: Melbourne University Press, 1964).

²⁴Ibid., p.23.

²⁵Ibid., pp.23-24.

²⁶A. Huxley, Brave New World. (Penguin Books, 1967), p.12.

But even more to the point (from a practical point of view in the field of education), if children are being used as pawns in this repugnant defence, what forms do the strategies take? Perhaps the most blatant example in the United States of America relates to the type of so-called 'Civics' courses that amount to sheer indoctrination. Of course, the pertinent question that arises is, Do other "Civics" courses elsewhere represent a difference in kind or in degree? The "Two Worlds" kit incorporates a:

. . . whining attack on everything liberal (including democracy) and a call for a return to republican government based upon the "God-given rights" of life, liberty and property. A paranoid suspicion of public officials, intellectuals and the mass media, a fear of "creeping socialism," diminishing individual freedom and atheistic forces are (also) incorporated into Two Worlds' main message: "Beware!"

 Intellectuals really get it. They are the ones responsible for "central planning". Especially taboo are those university economists who see the federal government as the key to providing the proper direction for the country.²⁷

But the series has received a "prestigious award" from the Freedoms Foundation. Kenneth D. Wells, a former president of the Foundation told a group of 300 teachers in Lampasas, Texas:

I have a daughter at Temple University and she comes home in tears almost every night from the socialistic things she hears there. I believe, and this is not a special case I'm talking about either, that the reason for it lies in the fact that of the 35 students in one of her classes, 17 are Jews and 12 are Negroes. That is where these ideologies that are not in keeping with our American Heritage are coming from.²⁸

²⁷M.A. Gordon, "The Worst of Two Worlds," Ramparts, (April, 1969), pp.58, 62.

²⁸Ibid., p.62.

CHAPTER III

TOWARD A PHILOSOPHICAL CONTEXT (2)

Philosophical Foundations of Curriculum Development

One of the scholarly approaches addressed to the identification of the strategies or exogenous determinants, that have been permitted to shape the curriculum, is related by King and Brownell.¹ These authors evaluate the motives of Occupational Man, Political Man, Social Man, Intellectual Man, and Religious Man with regard to their priority of claim on the curriculum.

A consideration of each perspective (or each Man) now follows in order to justify the choice of Intellectual Man as meeting the essential criteria for the years of liberal, general education. King and Brownell conclude that each of the claims on the curriculum that abide with the occupational, political, social, and religious perspectives should be accorded less priority and be reserved for later levels of education, or be given over to other agencies in society. As such those claims, other than that of Intellectual Man, are held to be exogenous, and should not, therefore, be permitted to determine curricular considerations.

Figures 7-12 on the following pages indicate, in summary form, the arguments presented by King and Brownell. Figures 7-11 deal with the nature of each perspective, the reasons for the continued reference on the part of educators to each perspective, and the pedagogical outcomes that arise when a particular perspective is considered

¹A.R. King Jr., and J.A. Brownell, The Curriculum and the Disciplines. (New York: John Wiley and Sons, Inc., 1966)

to have prior claim in influencing the nature of the curriculum. Figure 12 outlines the case for each perspective, so far as each meets certain criteria upon which priority of claim may be judged. On the basis of those criteria outlined in Figure 12, King and Brownell conclude that the claims of the perspective that relates to intellectual man deserve priority. Those assigned lower priority are thus relegated, since they are determinants that are exogenous to the development of curricula designed to cater for the refinement of the child's intellect.

Determinants Exogenous to the Development of Curricula

To be sure King and Brownell are passionately concerned with the promotion of such a view of the work of the school community, and much of the language employed is emotive and wanting in clarification (a task to which the remainder of the book is devoted), but it represents a worthwhile pool of thoughts upon which to base an exploration of the dimensions of such a claim of priority that many assign to the intellect. The authors have identified what has been referred to, for the purposes of this study, as exogenous determinants. They are exogenous in that they are not consistent with the claim based upon the priority of the intellect; they are determinants in that they have influenced the character of the school curriculum. The extent of this influence is perhaps obvious, but a further reference to this pervasive aspect must be cited, if only for its bluntness, and its repeated plea, that it is the child for whom we teach, and not the nation-state, the world of business, the society, or the church.

| Nature of the Perspective | Reasons for its Persistence | Pedagogical Outcomes When perspective has been made Prime |
|--|---|---|
| <p>1. "good" life is defined: a-by the quantitative and material forms of human goods b-by the autonomy and security which money provides</p> <p>2. school's task is to "give marketable skills"</p> <p>3. important to perceive purpose in terms of utility</p> <p>4. to work with things and people (and not so much with ideas) is "morally and intrinsically good"</p> | <p>1. a relatively recent demand on schools. (No mention in Plato's works)</p> <p>2. with 19th century industrialism came pressure from management and labour.</p> <p>3. with advent of universal education, occupational training assumes role of handling casualties of the academic program.</p> <p>4. the claim that ethnic, racial and economic minorities "fit" occupational programs. (as in Conant's thesis).</p> | <p>1. the logic of occupational training is the logic of the industrial or commercial process to be served.</p> <p>2. occupational training emphasizes a. the acquisitive motive; b. the cash value for studies and downgrades the intrinsic values in (i) learning; (ii) preparation for the good life; and in; (iii) opportunities to engage in useful and interesting work.</p> <p>3. "utility" becomes the primary defence for any course of study.</p> <p>4. irresistible tendency to consign the slow, poor and difficult students to the occupational programs.</p> <p>"When the claim for occupational man is made prime, the control and definition of the curriculum move inevitably to the consumers of manpower--the industries, the military, the government, and the professional school. The economic establishment becomes the piper, the schools the beguiled children."</p> |

FIGURE 7

OCCUPATIONAL MAN
(based on King and Brownell, pp.3-8)

| Nature of the Perspective | Reasons for its Persistence | Pedagogical Outcomes when Perspective has been made Prime |
|---|--|--|
| <p>1.man defined by his relationship to his state or nation. His citizenship is his most important characteristic.</p> <p>2.general characteristics include:</p> <p>a-transfer of loyalty from the person of the ruler to an impersonal state, aided by mass education</p> <p>b-a common language</p> <p>c-an indigenous press</p> <p>d-a desire for cultural particularity and economic self-sufficiency</p> <p>e-formation of a national military power, usually based on conscription</p> <p>f-preferred subjects of instruction in schools</p> <p>g-a preferred ancestry or mythical origin</p> <p>h-sometimes a common religion</p> <p>i-a system of patriotic symbols</p> <p>j-a designated territory</p> | <p>1.Greek philosophers very early wedded the state with education.</p> <p>2.changes in the power of the church and family have also launched the state into the control of the curricula</p> <p>3.the ideology of the nation state becomes to a certain extent a "secular religion"</p> <p>4.the powers of the nation state relate to: war, defence, taxation, business, welfare behavior</p> <p>5.vested groups view its central position as the source of support and accreditation</p> | <p>1.ethnocentricity marks the curriculum. The lore and myths of the state become facts. Ignorance, bias, caution and anxiety characterize the approach toward the selection of curriculum content</p> <p>2.the regulation of those who teach and administer the schools. "Contrary to circumstances known to foster free inquiry, scholarship, and the notion of "profession," the relationship of teacher or profession to state or subdivision thereof is generally that of employee to employer."</p> <p>3.in league with industrial, labour, or military powers, or government agencies, states control the curriculum and promote the image of the schools as sources of certain kinds of "manpower."</p> <p>4.a person is considered a legalistic element in someone else's grand strategy.</p> <p>5.the elevation of the theme of citizenship lessens the attention given to the "value of persons." Citizenship becomes the argument for: a.providing public schooling; b.marshalling tax support for schools; c.screening and choosing literature; d.providing guidance programs; e.selecting studies such as sciences and foreign languages</p> |

FIGURE 8

POLITICAL MAN
(based on King and Brownell, pp.8-14.)

| Nature of the perspective | Reasons for its Persistence | Pedagogical Outcomes when Perspective has been made Prime |
|---|-----------------------------|--|
| <p>3."nationalism is so pervasive a force 'in determining the patterns of education that it is an unstated assumption in educational circles that an education system is expected to support nationalism'".</p> | | <p>6.because they have survived and have in the past been required by the nation, some studies among the disciplines have been favoured.</p> <p>7.political man has meaning only in connection with the institution of government.</p> <p>8.there is no more to man than his political nature; the state exists to serve him.</p> <p>9.only by the claims of intellect and religion can such monolithic power be balanced, shaped or resisted.</p> |

FIGURE 8 (continued)

| Nature of the Perspective | Reasons for its Persistence | Pedagogical outcomes when Perspective has been made Prime |
|---|---|--|
| <p>1.pervasive and undeniable</p> <p>2.converges on human groups, on the roles of individuals in these groups, and on the impact of groups on individuals</p> <p>3.assumes that for every social need there is or soon will be a corresponding institution and that unneeded institutions give way to the needed</p> <p>4.assumes that the culture of any society consists of an ordered integrated system</p> <p>5.the social group develops an ideology, a secular religion</p> <p>6.the social group has a "natural personality"</p> <p>7.this perspective exhibits conforming, conserving, moulding, mind shackling tendencies; and is challenged by such ideas as "the person", "individual responsibility" and free inquiry</p> | <p>1.continued presence of the gaps between such ideals as egalitarianism and social mobility on the one hand, and perceptions of the realities of social existence on the other.</p> <p>2.if schools are expected to satisfy social wants; b. viewed as the agency for establishing the correct relationship between the individual and the social order; c. presumed to remedy disorders; and d. charged with training.</p> <p>students for the social scene; then, the claim for social man will persist.</p> <p>3.it is uncommon for schools to have the freedom and the mandate to criticize the political-social order due to the marriage of social man to ideological nationalism, a union which is strengthened by those who use</p> | <p>1.the school assumes, in the name of society, the responsibility for developing social man. Mass education is the socialization process for the mass, "national society".</p> <p>2.schoolmen identify and codify the desired behaviors, beliefs and attitudes of society.</p> <p>3.these beliefs, behaviors and attitudes become the "behavioral goals or outcomes" of learning. Desired behaviors emphasize the socially and politically useful acts, to the near exclusion of the speculative and philosophical. The "structures" of knowledge are not acknowledged, permitting the removal of complex patterns of facts and hypotheses from their intellectual contexts. A highly simplified version of "problem solving" as a general intellectual tool is assumed to exist.</p> <p>4.schoolmen choose methods and "educational experiences" or content which in their judgment will produce the desired behaviors.</p> <p>5.curricular themes include: life adjustment, social learnings, development of the whole child, the worthy use of leisure time, etc.</p> <p>related courses have included: Family living, Social living, and topics of</p> |

FIGURE 9

SOCIAL MAN

(based on King and Brownell, pp.14-20.)

| Nature of the Perspective | Reasons for its Persistence | Pedagogical outcomes when Perspective has been made Prime |
|---|---|---|
| <p>8. the school pays allegiance to the society's ideals, habitual behaviors, attitudes, and beliefs; and in its attempts to form the young faithfully with regard to these ends, the school uses the potent techniques of example, sanction, and indoctrination.</p> <p>9. intelligence comes to mean the process of solving "social Problems"</p> <p>10. systems of appraising the desired behaviors are established.</p> | <p>schools as instruments of some ideology.</p> | <p>study have included You and Your Personality, Health Habits, Manners and Morals, Driver Training, etc.</p> <p>7. schoolmen have engaged in "gentle indoctrination" in capitalizing on "student interest", "aspirations" and "peer pressure", in appeal to ideology; and in habit forming regimens.</p> |

FIGURE 9 (continued)

| Nature of the Perspective | Reasons for its Persistence | Pedagogical Outcomes when Perspective has been made Prime |
|---|--|---|
| <p>1.Man is a symbolizing animal. He reasons. He remembers. He reflects He meditates. He imagines He cultivates his mind by acquiring, retaining, and extending knowledge.</p> <p>2.Barzun's "House of Intellect" is masterful and advantageous but it does not clearly connote:a.the expansion of knowledge; b.the energy and excitement of inquiry; c.the role of imagination in disciplined thinking; d. Polanyi's "intellectual passions"; e.the possibilities of religion and art as disciplined ways of thinking in images.</p> <p>3."All men by nature desire to know" (Aristotle). Through intellect come the expressions of individuality which mark each one of us. The consequence of intellect for each of us is knowledge that we are ourselves.</p> | <p>Due to "conventional wisdom" the intellect has been considered so important, that no society has ever been content to leave its development to chance and informality. Once supported, intellect has been self-perpetuating, its ends unknown in any specific way. It has transcended its society. Intellect has become, through its organization of all that is known and its search for the unknown, the best and perhaps the only bridge to meaning. The intellectual perspective takes the social, occupational political and religious dimensions, interrelates them with understanding, criticizes them, deepens them, makes them more than conditioning Many of the criticisms of the claim of this perspective have nothing to do with intellect as a claim</p> | <p>1.the intellect contains its own raison d'être, its own objectives; it does not require utilitarian justification, although such can be marshalled.</p> <p>2.the learning of symbolic systems of the intellect--language number form--becomes the fundamentals of the curriculum.</p> <p>3.All studies emphasize their intellectual elements, those aspects which give theoretic insight.</p> <p>4.the heritage of man's intellect is made available to all students. The curriculum cannot be reduced to either process or content, for the intellect requires both concomitantly.</p> <p>5.the curriculum becomes problem centered, for the very core of each discipline is the problem of the pursuit of knowledge and truth.</p> <p>6.teachers must be intellectuals, persons of mature and expanding intellect, masters of the symbolic systems, practitioners of a discipline of knowledge.</p> <p>7.classes and courses refine raw emotions and raw experience.</p> <p>8.in its best sense, the claim of the intellect on content gives an aesthetic quality to study a quality of wonder for the unknown, pleasure and precision</p> |

FIGURE 10

INTELLECTUAL MAN

(based on King and Brownell, pp.20-24.)

| Nature of the Perspective | Reasons for its Persistence | Pedagogical Outcomes when Perspective has been made Prime |
|--|---|---|
| <p>4. By becoming disciplined in symbolic behavior, the young lose dependence on adults; they grow in self-esteem; they move toward freedom. Freedom is a spiritual affair and an intellectual task for every individual. Without the development of intellect man cannot be free.</p> <p>(But intellect in its humaneness is fallible since the world of reality is enormous and complex; opportunities for error and ignorance are varied and numerous.)</p> | <p>on the content on the curriculum; rather they concern faulty practices by teachers who may or may not have had the claim in mind. Some represent basic differences in point of view.</p> | <p>of word and thought, power and self esteem in valid generalizations, and humility in knowledge of error.</p> <p>9. in using the best approximations for truth available to analyze, criticize, synthesize, and judge prevailing social, political, economic, and religious views, teachers exemplify the life of freedom and wisdom and in so doing help the young transcend home, sex, peers, government, country, and self.</p> <p>10. the claim of intellect makes the disciplines of knowledge central to the content of the curriculum, for the disciplines are the intellect's systems of symbols and thoughts, the means by which men's minds master nature and grasp ideals.</p> |

FIGURE 10 (continued)

| Nature of the Perspective | Reasons for its Persistence | Pedagogical Outcomes when Perspective has been made Prime |
|---|--|--|
| <p>1. is total in scope; no areas of human experience are beyond its limits. It involves the phenomena of worship, prayer, religious experience, ritual, tradition, commitment, images--all reflect man's ideals of that which is holy, sacred, true, and perfect.</p> <p>2. Religious man uses the language of faith--re-valuation, reconciliation, eternal life, redemption, sacrament, communion, grace and love.</p> <p>3. The religious perspective recognizes man as finite and fallible, and yet somehow, triumphantly magnificent, for he alone among all creatures lives knowing that he dies.</p> | <p>1. this claim is persistent simply because the concern is universal and ultimate. In this view all education not just schooling has a religious character, and there is no way of separating knowledge from the network of religious values.</p> <p>2. for public (state) schools however, the religious perspective on man presents an enormous quandary. The official separation of church and state, the multiplicity of religions, and the tradition of tolerance, in effect have caused the public school curriculum to ignore or deny by omission the religious perspective.</p> <p>3. But curiously enough, public schools are religious enterprises in a sense, since whatever is held ultimate or sacred, and is based upon assumptions and beliefs that lie in the Judeo-Christian religious heritage can be defined as part of religion.</p> | <p>The educational characteristics that seem to pertain when this perspective is made prime as it is in church-sponsored schools are:</p> <ol style="list-style-type: none"> 1. content which is at odds with church beliefs tends to be eliminated, and if it simply cannot be eliminated, it may be slanted to conform to church doctrine. This results in some cases in the perversions of the very nature of the discipline. 2. strong defence of tradition, stability of beliefs and the heritage of classical studies which support the religious heritage. 3. employment of lists of sanctioned and prohibited books and films. 4. supports martyrdom for the right ends as life's highest goals. 5. support given to reverence for man as a child of God, for the brotherhood of man, for self-sacrifice and devotion, for life and charity for one's fellow man. 6. supports the objectivity of values; religious experience is a valid method of knowing, etc. 7. <u>all</u> students are offered the synoptic disciplines of knowledge such as philosophy, history, literature and religion. |

FIGURE 11

RELIGIOUS MAN

(based on King and Brownell, pp.24-26.)

| Criteria upon which Priority can be Judged | Claims On The Curriculum | |
|---|--|--|
| | Occupational Man | Religious Man |
| <p>1. Assurance that man's essential nature will be fulfilled; -this essential nature is held to be man the symbolizer--the man who reasons, reflects, remembers, meditates, imagines, creates.</p> <p>2. Is it the most general in that studies so based have the widest applicability and give the highest power of understanding?</p> <p>3. The authors assign priority to those studies that are the most learnable and teachable.</p> <p>4. The authors give priority to the view of man which looks beyond what man is and sees him as he might be.</p> | <p>Occupational Training: 1. tends to be deficient in theoretical insight, and hence not truly practical in the long run.</p> <p>2. tends to be inflexible in that it is focused upon the mastery of detailed routines.</p> <p>3. is incoherent in the sense that many routines are devised for isolated needs and wants, and is always in danger of being rendered obsolete.</p> <p>4. offers little support for the cultivation of inquiry or the development of knowledge.</p> <p>Theoretical and applied disciplines of knowledge can reinforce each other, with the theoretical being antecedent.</p> <p>5. gives logical priority to the material, the acquisitive, and the quantitative, and, runs counter to a long thread of Greek and Christian thought.</p> | <p>1. moral responsibility for society must not be left to a single institution in a pluralistic society such as ours.</p> <p>2. public schools have the intellectual responsibility to teach about the many dimensions of man and to help students discover the implications of every perspective.</p> <p>3. since society is pluralistic unity of thought is denied, and thus the teaching of religious values is formless.</p> <p>4. the narrowness of thought, curriculum, and teaching practices have precluded free inquiry in some religiously controlled schools.</p> <p>5. to seek relationships between beliefs and the several studies in the curriculum is to present a quandary, since to do so is to damage the spirit of free inquiry, prejudice the value of studies, and restrict the pursuit of knowledge.</p> |

continued overpage

FIGURE 12

PRIORITY CRITERIA AND THE CLAIMS ON THE CURRICULUM
(based on King and Brownell, pp.26-33.)

| Social Man | Political Man | Intellectual Man |
|---|---|--|
| <p>1.the school curriculum in a free society must exist in some degree apart from the social order and provide criticism of it.</p> <p>2.the universal, public nature of organized knowledge transcends any single group, society, or nation.</p> <p>3.the reification of the relation of group members elevates the group or social structure to a totalitarian role. The ideal of individual freedom is submerged in the group; the tyranny of the group over the person is fostered.</p> <p>4.when schoolmen choose and codify a desired set of beliefs and behaviors, and, in the name of society teach them as topics and courses, we ignore the natural mode of social learning--that of example, inspiration and contagion.</p> <p>5.the definition of "problem" and "intelligence" as primarily social is a restricted one.</p> | <p>1.the very condition that the interests of government are vested in schooling suggests that the nation-state bears watching. The notion of the state as a mythical thing with a mind encourages officials and citizens alike to regard the state as an end rather than a means.</p> <p>2.the policies of government are man-made, and unless criticism comes freely and continuously, and unless standards for its judgment transcend the nation, tyranny is inevitable.</p> <p>3.the ability of the nation-state or other divisions of government to grant and withdraw licences for teachers, to command the teaching of some subjects, and to proscribe others, to favour one brand of knowledge over another, to stipulate age-grade placement of studies, can make schooling instrumental to the state. In a free state the claim for political man cannot be made prime.</p> | <p>1.unthinking responses such as those promoted by an individual's state, his occupation, his society, and his religious nature and institutions are deficient in meaning and subtlety. They do not give the individual the flexibility, adaptability and creativity that come from the schooled capacity to make distinctions. Thoughtless involvements do not allow a person to detect unusual patterns, make discriminating responses, discern unspoken premises, relate general ideas to complex particular instances, or strive for greater personal involvement in the several important aspects of his life.</p> <p>2.deep prior study of the disciplines of knowledge is one of the principal hallmarks of occupational success.</p> <p>3.if patriotism and citizenship are to be more than simple acceptance of conventions, the intellectual disciplines of man must play a central role in the education of political man.</p> |

FIGURE 12 (continued)

| Social Man | Political Man | Intellectual Man |
|---|------------------|--|
| <p>6. forces within institutions act to erode the very purposes for which the institutions were conceived; and besides society is not the ultimate end of man</p> | | <p>4. foundation in the ideas and methods of inquiry found in the disciplines constitutes the school's most central contribution to social man; indeed, the school is the only one of society's agencies that can even attempt this task.</p> <p>5. the religious dimension of man is shaped significantly by an intellectual education. The intellectual context deepens the approach to forms and rituals, unfolds and deepens the meaning behind religious observance, gives purpose to social involvement in church life, and makes available the heritage of literature, art, and music to a fuller appreciation of man's religious heritage.</p> |

FIGURE 12 (continued)

Wees² cites the several categories of people--those exogenous beings--for whom we instead teach: the first being "the teachers"; second, "the saints and angels"; third, "the disciples of the disciplines"; and fourth, "us", which may be identified as including two main groups, namely, "the parents" and the "State."³

With regard to the teachers, Wees notes that it seems to be "an innate characteristic of human nature for people to tell people what to do and how to do it."⁴ Those being told may "recoil completely and sometimes with real contempt for the teachers," an attitude that was originally established in the Garden of Eden, in which setting the teacher took the form of a serpent.⁵ Wees notes that through the ages such a disparaging attitude did not change very much since it was remarked in Athens, for example, that people used to say of a departed soul whom they disliked, "Either he has gone to hell or he has become a teacher."⁶

Today, however, this urge to tell others what to do and how to do it has, in schools, become very respectable, and in the process has added "a quality of smugness to the teaching enjoyment of teachers who teach for their own sake."⁷

Because it is lonely in the Kingdom of Heaven, the necessity of providing the saints and angels with companionship resulted in the

²W.R. Wees, "For Whom We Teach," in B. Burnham, (Ed.), New Designs For Learning. (Toronto: University of Toronto Press, 1967)

³Ibid., pp.19-21.

⁴Ibid., p.19.

⁵Ibid.

⁶Ibid.

⁷Ibid.

formation of that second category of people for whom we teach. As Wees notes:

In directing the minds of children heaven-ward, the churchmen were also saving them from Hell, and to snatch a brand from the burning was in itself a reward for which, to those completely devoted religious educators, there could be no substitute.⁸

In a more serious view however, Wees warns us of the new breeds of saints and angels--those creators of "the great ideologies, each with its minor ideological satellites."⁹ He notes:

As we read the slanted textbooks throughout the world, and as we read about the censorship of textbooks by people who crave companionship in their own special heavens, we can only wonder for whom they would have us teach.¹⁰

Concerning the "disciples of the disciplines," Wees deplores the fact that the age-old disciplines are "so old that they are now hoary with age, righteousness, and, patriarchal authority, but, fortunately, not with decrepitude."¹¹ But even more deplorable is the behavior exhibited by most disciples of the disciplines. Wees relates that:

Itching with inquiry themselves, intent as they are, not upon the known but upon the unknown, when they apply their minds to education they seem compelled to subdue inquiry and make the known, not the unknown known.

 Today the doctrinaires of the various disciplines, with that patriarchal authority which we have mentioned, extract what they confidently call the known facts, organize them and re-organize them to suit themselves, and then produce them as 'new curricula' in the schemata of 'curriculum development.' Because of their prestige in the various disciplines these curriculum committees, as they are euphemistically described, are able to apply their authority in an overwhelming majority of classrooms and thus assume the status of oligarchies of education.¹²

⁸Ibid., p.20.

⁹Ibid.

¹⁰Ibid.

¹¹Ibid.

¹²Ibid.

The disciplinarians in their curriculum activities are prostituting what we see them practice in their own fields of academic endeavour. It is they who have given birth to that educational-industrial germ, which may be referred to as the Kit-curriculum corporation alliance, and which, because of its parentage, has inherited that propensity to industrial obscenity known as planned obsolescence. The Physical Science Study Committee (P.S.S.C.) program which included new course materials for the teaching of physics has had its first "go-around," and is ready to be superseded by a "second-generation" kit.¹³ Much may have been learned, but surely the suspicion that much more will be earned if a "revised edition" is put on the market is not unwarranted in view of the performance of the business world to date. Mathematics is already "second generation" in the United States of America. Clinchy notes that the Process "is--fortunately or unfortunately--unending."¹⁴ The present author suggests that such a process in the United States bears a striking resemblance to that phenomenon, the military-industrial complex, referred to by Galbraith.¹⁵ The large computer manufacturers have already acquired ownership of educational publishing houses and are preparing to harness the huge market represented by the education-curriculum field.

¹³E. Clinchy, "The New Curricula," in E. Fenton (Ed.). Teaching the New Social Studies in Secondary Schools: An Inductive Approach. (New York: Holt, Rinehart and Winston, Inc., 1967), p.512.

¹⁴Ibid.

¹⁵J.K. Galbraith, "How to Control the Military," Harper's (June, 1969), pp.31-46.

That fourth group for whom we teach--us--refers to both us as parents, and us as the State. The part of the parent is manifest in the egocentricity of those twins--pride and prejudice. The child is a part of the parent and, through education, should not exhibit characteristics opposed to those thought not to be exhibited by the parent. Education from the parents' point of view is that which the parent received, what he is now paying for and nothing else. And of course, the power wielded by the State on education is for the purpose of making "good" men, men who will act nobly and conquer their enemies in battle simply because they are "good."¹⁶

Although each of the four agencies identified involves the child, each "treats the child as if he were a manikin, potentially capable of animation."¹⁷ Of the outcomes Wees reflects:

The teacher who teaches for his own sake revels in self-righteousness when his talking dolls can faithfully play back to him the sounds of his master recording. The ideologists, saints and sinners alike, gleefully report the new census returns as they count the synthetic bodies annually added to their assemblies. The disciplinarians proudly announce that, having boiled down their disciplines to the basic principles, they can now lay them out to dry, then cut the Big Ideas into patterns of any size to fit manikins from the kindergarten to the Ph.D.

 The fourth agency, we, the state, apparently has four purposes in mind in the manipulation of its plastic models; first to mould the image that we have of ourselves; second to perpetuate the social purposes and social organization, which we, mainly by a series of fumbling accidents, have created; third, to increase the inventory of material substance which we wistfully call our economy; fourth, to be prepared to defend our self-image, our social organization, and our economy by war.¹⁸

¹⁶Wees, op.cit., p.21.

¹⁷Ibid.

¹⁸Ibid., pp.21-22.

Of course, the child's individuality is substantially eroded due to the pervasive force of these exogenous determinants. They, the children, have little to say about what is happening to them until they are of leaving school age, "at which age they can legally say, 'To hell with it.'"¹⁹ Such is the verbal prerogative of the child, but that such an indictment echoes the observations made by astute scholars (like Dewey) so many years ago is indeed cause for concern.

Dewey noted, for instance, in his analysis of the so-called traditional school that the subject-matter was "selected and arranged on the basis of the judgment of adults as to what would be useful for the young sometime in the future," and thus "material to be learned was settled upon outside the present life-experience of the learner."²⁰ Is not Dewey noting that it was for others, and not for the child, for which the efforts of education were concerned? And is not the following statement an adequate precis of the King-Brownell thesis relating to the priority-criteria of the intellect's claim on the curriculum?

Any experience is mis-educative that has the effect of arresting or distorting the growth of further experience. . . .

 a given experience may increase a person's automatic skill in a particular direction and yet tend to land him in a groove or rut; the effect again is to narrow the further experience.²¹

The actions of the kit-curriculum disciples are simply sophisticated versions of the practises of educators of the last seventy years. Consider that Dewey in 1902 wrote:

¹⁹Ibid., p.22.

²⁰Dewey, Experience and Education, op.cit., p.76.

²¹Ibid., pp.25-26.

. . . in school each of these subjects is classified. Facts are torn away from their original place in experience and rearranged with reference to some general principle. Classification is not a matter of child experience; things do not come to the individual pigeonholed.

 The adult mind is so familiar with the notion of logically ordered facts that it will not recognize--it cannot recognize--the amount of separating and reformulating which the facts of direct experience have to undergo before they can appear as a 'study,' or branch of learning.²²

Do we not delude ourselves by glibly citing "progress in education" when essentially the quality of education has changed very little since 1900? In their packaging of ideas (and solutions), these disciples overlook the fact that in so-doing, they have denied the child the ecstasy of testing the validity of an intensely personal and provoking notion. To cite Dewey again:

. . . even the most scientific matter, arranged in most logical fashion, loses this quality (of provocation?) when presented in external, ready-made fashion, by the time it gets to the child. It has to undergo some modification in order to shut out some phrases too hard to grasp and to reduce some of the attendant difficulties. What happens? Those things which are most significant to scientific man, and most valuable in the logic of actual inquiry and classification, drop out. The really thought-provoking character is obscured, and the organizing function disappears.²³

In essence Wees has noted the same notion in writing that the disciples of the disciplines "subdue inquiry, and make the known, not the unknown, known."²⁴

Another source of exposition on this general theme relating to

²²Dewey, The Child and the Curriculum, op.cit., p.6.

²³Ibid., p.26.

²⁴Wees, op.cit., p.20.

the determinants of curricular activities is related in The Secondary Teacher, by Monroe.²⁵ Monroe's original thesis has been referred to previously, but his grouping of the aims of education into three main categories of theories (as reported in this article) is worthwhile noting here.

The assimilationist theories regard the main aims of education as "social adjustment, emotional security, integration."²⁶ Such is the fate of the child to be "thought of as a barbarian to be tamed, a character to be moulded, a foreign body to be assimilated, a personality to be adjusted."²⁷ The four possibilities so far as "aims of education are concerned are (a) to mould moral man; (b) to indoctrinate political man; (c) to train economic man; (d) to adjust social man."²⁸ The theme is of course familiar, as it is with the second type of theory: the "practicalist or preparation for life theories."²⁹ This so-called "how-to" method of education incorporates the whole gamut of mundane activities from "how to curl hair" to "how to behave on dates."³⁰

Monroe's reasons for advocating the "intellectualist theory," the third of the triad, are stated thus:

First of all it seems to me to show much more respect for the pupil and his freedom. It does not involve playing God by trying to fit the pupil into a mould by twiddling with his psyche (adjusting him) so as to make him fit into one or

²⁵D.H. Monroe, "An Intellectual View," The Secondary Teacher, (February, 1969), pp.27-30.

²⁶Ibid., p.27.

²⁷Ibid.

²⁸Ibid.

²⁹Ibid., p.28.

³⁰Ibid.

other of society's Procrustean beds. Secondly, I would suggest that we badly need to think critically about our way of life. We badly need to take a long cool look at it. . . .

 (this) pressing social need. . . can be met by the schools while at the same time encouraging the pupil's own mental development and not attempting to mould him.³¹

Joske's³² main criticism of Monroe's "monastic view" is essentially similar to that demonstrated in Conant's³³ thesis in that intellectual activity is somehow out of the reach of the "less-gifted" child. One must partially agree with Joske's statement that:

There are other children who I think at the moment are probably incapable of these higher flights of intellectual activity and need much more mundane instruction, much more practical instruction.³⁴

But both Conant and Joske assign intellectual activity the status of "aboveness" (not elitist), or of somehow being a distinct entity which sets the standards by which those who wish to indulge in intellectual intercourse must adhere. Is not an intellectual activity an intensely private and wonderful venture over which the child has ultimate control? Is it not possible that the "less-gifted" child is capable of pursuing such a venture? It seems reasonable to suggest that an activity may only be intellectual in terms of the perceptions of the actor involved. But accepting this does not necessarily imply that one child is to be exposed to a disciplined field of inquiry, and that the other is to be

³¹ Ibid., p.30.

³² W. Joske, "A Pluralistic View," The Secondary Teacher, (February 1969), pp.31-32.

³³ James B. Conant, Slums and Suburbs. (New York: McGraw-Hill Book Co., 1961),

³⁴ Joske, op.cit., p.32.

trained, adjusted or indoctrinated. Is it not possible that materials and teaching strategies associated with the discipline can be developed to cater to a range of intellectual capabilities? This latter question is expected to be the eventual concern of the present author, whereas the immediate study is meant to represent a means by which the question itself may be understood.

The Concept of the Intellect as a Determinant of Curriculum Development

To this stage then, the philosophical context has taken the rather crude form of a listing of the thoughts of scholars that have influenced the thinking of the present writer. The concepts of the "individual" and the "intellect" are obviously central to the context. Mention has also been made of the need to employ the techniques used by the analytical philosopher, and it is to the task of developing a more refined relationship between these central concepts and the purpose of the study that attention is now directed. Figure 13 may be represented as shown on the following page.

Those ideas that impinge upon the educational end have been discussed previously from the point of view of highlighting the theme of those basic assumptions relating to the ends of education. The ideas incorporated in that theme--that an aim of education should be one that provides opportunity for intellectual pursuit--arise out of the works cited (and others) and the writer's experience in teaching. Those determinants that should not be permitted to destroy the inherence of that intellectualist approach have also been cited. But those conclusions that surround the prior claim of the intellect on the

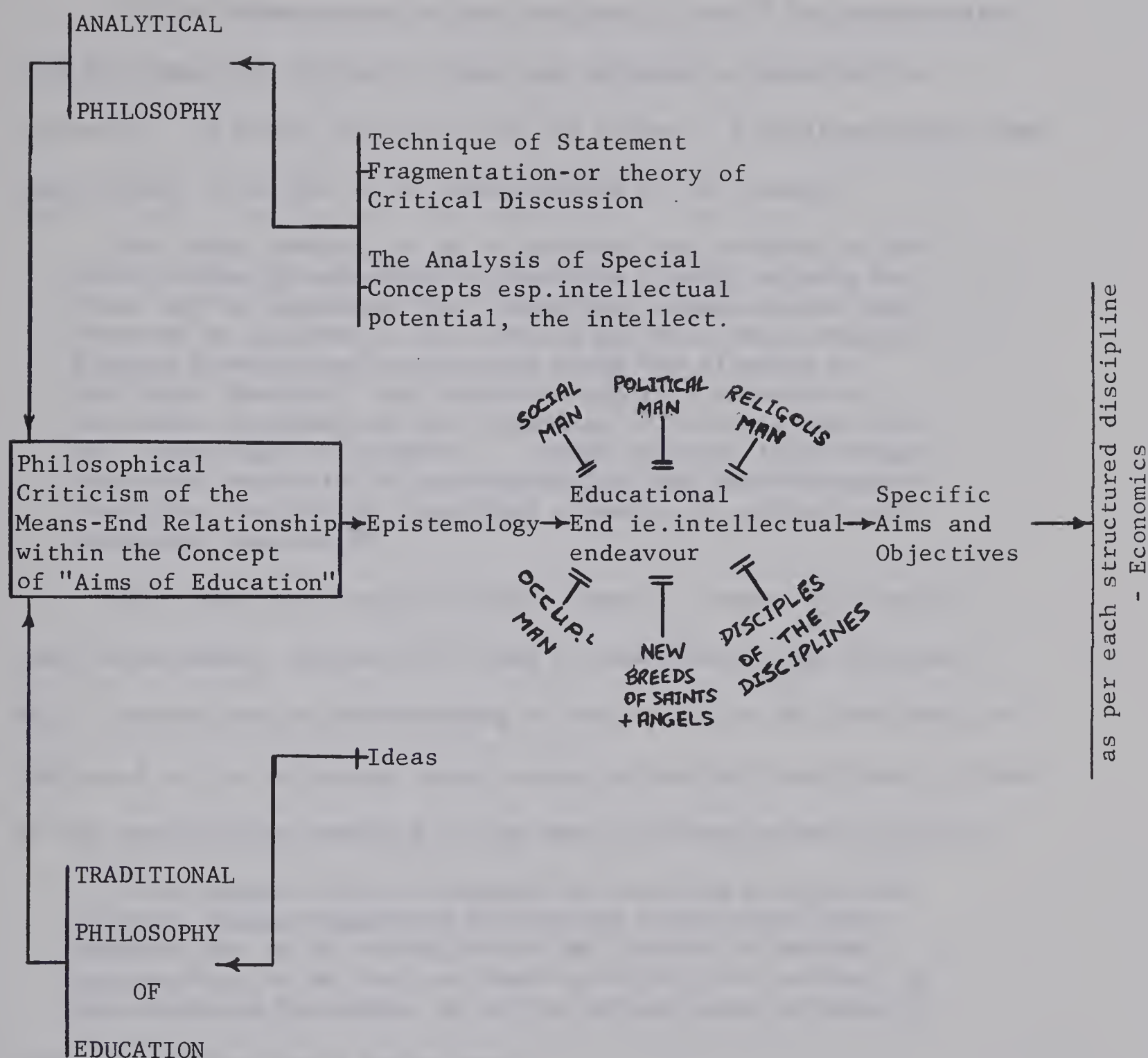


FIGURE 13

A PHILOSOPHICAL CONTEXT (REDEFINED)

curriculum must be subjected to further analysis in order that a greater measure of precision may be attached to it, especially since it forms the basis of the primary theme of the study.

In his "demarcation of the intellect," Ryle³⁵ has demonstrated just how vague the concept is when one attempts to describe its character. He notes the results of the efforts of epistemologists when they attempt to arrive at an understanding of the concept.

What they commonly do is to classify the elements of doctrines didactically expounded by theorists already at home in them, and to postulate that counterpart elements must have occurred as episodes in the work of building those theories. Finding premises and conclusions among the elements of published theories, they postulate separate antecedent processes of moving to the 'cognising' of conclusions from the 'cognising' of premises. . . these separate intellectual processes postulated by epistemologists are para-mechanical dramatizations of the classified elements of achieved and expounded theories.³⁶

Many educators, and especially those in league with the kit-curriculum makers, operate with such a conception of the intellect. Ryle's search for an understanding of the nature of the intellect, as indicated in the following terms, seems particularly pertinent in view of the prostitution rendered in the name of "intellectual activity."

So we ought to decide whether the required acts of conceiving, making judgements and drawing conclusions from premises are to be looked for in the theorist's earlier exploratory, or in his resultant expository, activities, in his acquiring knowledge, or in his telling what he knows.³⁷

And in particular, Ryle notes that:

. . . didactic expositions of arguments with their conclusions and their premises, of abstract ideas, of equations etc., belong to the stage after arrival and not to any of

³⁵G. Ryle, "The Intellect," in Philosophy and Education: Modern Readings. I. Scheffler (Ed.) (Boston: Allyn and Bacon, Inc., 1966)

³⁶Ibid., pp.173-174.

³⁷Ibid., p.173.

the stages travelling thither.

 His 'thoughts' are what he has now got; they are not the
 toils without which he would not have got them.³⁸

It seems inappropriate in the present study to explore the whole realm of denotative and connotative dimensions that may be attached to the concept of the intellect, although such a venture is obviously of great importance. Instead, selected connotations shall for the present suffice as criteria for the various philosophical constructs that have been offered as justifications for teaching (or not teaching) economics in the secondary school at a particular age level. Such a procedure seems justifiable given that a significant task in research involves the refinement of a definition of a concept for one's immediate purposes. Bruner's statement in relation to the concepts of intuitive and analytical thinking states:

As to the nature of intuitive thinking, what is it? It is quite clear that it is not easy either to recognize a particular problem-solving episode as intuitive or, indeed, to identify intuitive ability as such. Precise definition in terms of observable behavior is not readily within our reach at the present time. Obviously, research on the topic cannot be delayed until such time as a pure and unambiguous definition of intuitive thinking is possible, along with precise techniques for identifying intuition when it occurs. Such refinement is the goal of research, not its starting place.³⁹

Indeed it is pointless to attempt to define what the "intellect" is; but it is necessary to define or indicate the general meanings--

³⁸Ibid., p.180.

³⁹J. Bruner, The Process of Education. (New York: Vintage Books, 1960), p.59.

the selected connotations--we wish to attach to the concept (in the meantime), in order that an assessment of proposals relating to the teaching of a subject may be attempted.

Connotative Criteria

It seems that, given the general theme as outlined by King and Brownell in arriving at their conclusion that it was Intellectual Man that should have prior claim on the curriculum, the following question is pertinent: In what respects do the proponents of economics in the secondary school cater to Intellectual Man's claim, if at all?

The connotative criteria that derive from the King and Brownell discussion are those that relate to the characterization of the disciplined fields of inquiry. If the disciplines are indeed "the intellect's systems of symbols and thoughts,"⁴⁰ the nature of those disciplines shall characterize the connotative dimensions to be assigned to the concept of the "intellect." Simply stated, the connotative dimensions involve catering to the child's ability to generalize and construct hypotheses on the basis of empirical referents, to develop specific conclusions on the basis of generalized premises, to subject deductions to analysis, and to modify the hypotheses on the basis of further empirical observations. In evaluating the statements made by proponents of economics in the secondary school one is unable to be specific to any great degree, since one cannot attach a strictly denotative dimension to the concept of the "intellect."

⁴⁰King and Brownell, op.cit., p.24. "

However, it is possible to detect the connotative theme stated above, and it is the aspects of this theme that shall suffice as the criteria by which the proposals for the teaching of economics may be assessed.

Philosophical Bases of the Economics Curriculum in Victoria (Australia)

Ryan perceives the aim of teaching Leaving (Grade 11) Economics in terms of the "whole aim of the school."⁴¹ In consequence, the theme of the article is clearly representative of the plea of Social Man. If, as Ryan notes, "the school must supplement the role of the family in the formation of good citizens, and each subject taught in the school must contribute its share in the formation given by the school,"⁴² it seems reasonable to suggest that the pedagogical outcomes outlined by King and Brownell will manifest themselves. For instance, such a theme indicates that "the school assumes, in the name of society, the responsibility for developing Social Man."⁴³ King and Brownell suggest also that it will be the schoolmen who will "identify and codify the desired behaviors, beliefs and attitudes of society."⁴⁴

Ryan notes also that the aims of teaching Leaving Economics may be looked at in terms of the "qualities we envisage" as being representative of adult maturity.⁴⁵ Adding to the confusion is the suggestion that "the cold facts of economics need to be mellowed by the warmth of

⁴¹Ryan, op.cit., p.18.

⁴²Ibid.

⁴³King and Brownell, op.cit., p.17.

⁴⁴Ibid., p.18.

⁴⁵Ryan, op.cit., p.19.

Christian principles and social studies."⁴⁶ Whichever Man (Religious or Social) is here laying claim on the curriculum, one must conclude that the overall theme of Ryan's suggestions regarding the aims of the secondary school does not cater to the Child (as a child and not as an adult) and his intellectual potential. The production of fully-matured citizens is a treacherous premise upon which to develop the objectives of teaching a particular discipline. Paradoxically, it is Intellectual Man who has the greatest insight into the responsibilities of citizenship, and into the worth and "warmth" of so-called Christian principles. Is "allegiance to society's ideals, habitual behaviors, attitudes, beliefs"⁴⁷ to be preferred to open unfettered intellectual pursuit? Are "the potent techniques of example, sanction, and indoctrination" to be preferred to the systems of symbols and thoughts that represent the intellect? Economics as a discipline has such systems, and yet in Ryan's article these have been by-passed.

Perhaps the most astute contributions to the discussion relating to the teaching of economics in the secondary schools of Victoria are those provided by Gregory.⁴⁸ Gregory makes reference to an article by Dr. Frankel⁴⁹ which states the predominant themes as they exist in the

⁴⁶ Ibid., p.20.

⁴⁷ King and Brownell, op.cit., p.16.

⁴⁸ A. Gregory, "Teaching Economics in Secondary Schools," General Journal of The Victorian Commercial Teachers' Association (Vol.7, December, 1966) and "At what age should pupils be introduced to economics?" General Journal of The Victorian Commercial Teachers' Association, (Vol.6, December, 1965).

⁴⁹ M.L. Frankel, "Developing economic competence in young citizens," General Journal of the Victorian Commercial Teachers' Association, (Vol.7, December, 1966)

United States of America. In so far as the latter article appears appropriate to the scene in Victoria (Australia), reference will be made to its prescriptions.

With reference to the aims of teaching economics, Gregory notes the objectives of education as developed in the United States which "would well serve our purposes."⁵⁰ Consider the following objective stated by the Utah State Department of Public Instruction in 1959:

Economic problems are among the most pressing and persistent issues facing our society. They confront the citizen in his role as worker and producer; as consumer and investor; as member of a union, trade association, farm organization, or civic club; as a voter; and as a member of the basic family unit. The goal of economic education in the secondary school is to help the students develop competencies for these roles. Factual information about economic activities, understanding of basic human and institutional relationships, and motivation to perform individual roles effectively are basic aspects of the educational process. The development of responsible citizenship, based on understanding of economic forces and conditions, is important in national well-being and may prove crucial to our survival.⁵¹

There may well be a host of treacherous ideas embodied in this statement of objectives for the teaching of economics in Victoria (Australia). One may ask, for instance, what is the "role" of a worker, producer, consumer, investor, etc., and what relevance do they have to the child as a child? The "basic family unit" concept is particularly confusing, but supposedly it relates to a Christian family unit! Nowhere in this statement is there consideration given to the child as such. Instead

⁵⁰Gregory, "Teaching economics in secondary schools," op.cit., p.65.

⁵¹Ibid., pp.64-65.

their future roles have been arranged, the attendant behaviors, attitudes and beliefs, therefore, have been assigned as determinants of what shall be incorporated in the curriculum; someone has decided for the child what are (or, to be more correct, what should be) the "basic human and institutional relationships"; extrinsic motivation is directed at ensuring that the child will "perform" (manikin manipulation?) the arranged role "effectively"; the standards of "effectiveness" presumably derive from someone's (how could it be the child's?) conception of how a worker performs effectively, how an investor invests effectively, and so on; and finally, it has been decided that these are "basic aspects" of the educational process. Social Man and Occupational Man are indeed well represented in these prescriptions for the child. And Political Man is catered to also, since "responsible citizenship is important for the "well-being of the nation." In fact, such responsibility in the performance of one's civic duty may prove to be a crucial defence against the legion Devil. Are not these "basic aspects of the educational process" the very pawns to be distrusted when mobilizing against a Devil, if only for the reason that they are saturated with vagueness and ambiguity? It seems strange that Intellectual Man is to be distrusted when he is on the job, or acting as a producer or whatever. Presumably Intellectual Man is incapable of making "wise vocational selection and preparation," of developing "skills in personal and family financial management," or of "understanding the part played by government."⁵²

⁵²Ibid., p.65.

And what better defense has the child against indoctrination than the spirit of unfettered inquiry offered via the disciplines? The implications of specific objective number ten--that is, to "Become informed about free enterprise and its competitors"⁵³--in terms of bias and falsity are frightening. To begin with, one may seriously question the host of connotations to be assigned to the concept "free enterprise" and secondly, that it has "competitors" seems to beg an equally extensive host of interesting (and treacherous) questions about assumptions. And on the same point, that the student should "comprehend the organization of production and distribution" is indeed an indication of the sources of influence being directed at the nature of the curriculum. If Intellectual Man is to be granted prior claim on the curriculum, the present writer disagrees with Gregory that, "adopted to the Australian scene," these ideas as expressed by the Utah Department "would well serve our purpose."⁵⁴

A conference of high school teachers, held in Victoria (Australia) in 1963, was concerned with the aims of teaching a course in economics. Again it was the Leaving level (Grade 11) that was involved, but the present writer holds that Gregory's article relates most of the general philosophy of teaching at any level of the secondary school in Victoria. Gregory, himself, implies as much in the following statement:

Everyone concerned with economics accepts the goal of citizenship. In fact every subject understandably enough hopes to achieve this universal virtue.⁵⁵

⁵³Ibid.

⁵⁴Ibid.

⁵⁵Ibid., p.66.

The question of whether "citizenship" should be or should not be a broad aim in the teaching of economics, however, is not really the important issue. After all, to reiterate, a person schooled in the techniques of scientific inquiry is surely going to behave intelligently in his "role" as a citizen, and yet "citizenship" is not the specific behavioral objective in mind. But here such an objective--"citizenship," "good citizenship," "responsible citizen in a democratic community"--is in mind. The point is, in whose mind is it? Who is to decide what is meant when we refer to "good citizenship?" If, in a formal educative environment, specific behavioral objectives are important (for the many reasons that they indeed are), it seems that given the aim of "good citizenship," the host of value judgments that will determine for the child how he is to manifest this "goodness" will surely be a matter for concern. And, of course, he is to exhibit these traits of "goodness" as a citizen and not as a child, in the sense that the "role" of the citizen must surely differ from the behavioral activities associated with growing up. If we knew what the "role" of the "good" citizen was, then perhaps (although one must surely realize how futile a venture that would be) we could better understand this objective.

Gregory refers substantially to the "most important document in the United States of America" as the source of such "helpful guidelines" given the "prime goal of citizenship."⁵⁶ But it seems pointless to be concerned with these, given that such "guidelines" are based on an

⁵⁶Ibid.

objective that denies priority to Intellectual Man. One might counter with the argument that the concepts of Intellectual Man and Social Man cannot be considered as mutually exclusive. In a sense this is quite valid; but in terms of the development of an educational program in a public school system, the prime bases must be such as to avoid misinterpretation and the attendant outcomes of such misinterpretation.

Consider Frankel's argument as quoted by Gregory:

In the free society and economic system of this nation the decisions of individual citizens, acting independently and collectively, determine the direction of the economy. If those decisions are informed and wise, the nation will prosper. If they are based on emotion, prejudice and ignorance, the nation will stagnate and collapse. The function of economic education is to assist our citizens to make those economic decisions that foster best the attaining of the American goals of economic growth, stability, security, freedom and justice.⁵⁷

Accepting that the "direction of the economy" is important (for economic reasons), no child's education should be determined by a nation's desire to be prosperous. Presumably, a child's decision to exhibit a behavior consonant with the objectives of a socialist economy cannot be "informed" and/or "wise!" Are we to believe that so-called "free enterprise" society has been devoid of "emotion prejudice and ignorance?" But again, the important point: Who decides what economic decisions are the best? And besides, would Intellectual Man's economic decisions (which must surely be "informed and wise") not be "best" for the attainment of the economic goals of a particular society?

Gregory cites Nakervis' summation of the views of teachers in Victoria at the 1963 conference, but the ideas expressed add little to

⁵⁷Ibid., p.67.

an understanding of this citizenship objective. We are assured that:

There is a great deal of the subject matter of economics which, if handled in a descriptive way, should provide an essential part of the mental equipment of every responsible citizen of a democratic community.⁵⁸

The concept of a "responsible citizen" is paramount in the arguments forwarded by those who view Social Man as having prior claim on the curriculum. The pedagogical outcomes have been alluded to previously, but essentially the confusion-ridden terminology and consequent dangers of misinterpretation on the part of the teacher must surely deprive the child of the valuable, thought-provoking and rewarding educational experiences that accompany the disciplined study of economics--when such is considered a purely intellectual venture. As Gregory notes:

We need to balance the risks of misunderstanding economics as taught, against the risks of ignorance and misinterpretation from economics as propagated and popularized.⁵⁹

Is this not a substantial argument in favour of the "intellectualist approach?"

The second objective discussed by Gregory relates to the "serving of vocational needs."⁶⁰ Significantly, this objective is given a very brief treatment in view of the pedagogical outcomes that King and Brownell have discussed as being consequent of granting Occupational Man prior claim on the curriculum. And yet it is interesting to note that it is here that Gregory relates that for the businessman ("for whom do we teach?"), "economic training. . . is important both for the data it yields and the technique of thinking it

⁵⁸Ibid.

⁵⁹Ibid.

⁶⁰Ibid., p.68.

generates."⁶¹ Accepting that economics has its unique symbols and has a structure, a "technique of thinking" is most assuredly a valid objective for the teaching of the subject at any level. Such a notion, however, does not follow given the citizenship objective, since the "technique of thinking" required in that sense is not a function of the field of inquiry itself, but of the directives determined by those judges of the criteria of "goodness" of citizenship.

However, one must also question whether the "technique of thinking" that the businessman wishes to be generated from the study of "economics" (the businessman may define economics in a particular fashion) is consistent with the "technique of thinking" that is employed by the economist.

Objective number three, as cited by Gregory, relates to "Intellectual training."⁶² The notions expressed here are indeed worthy of quotation at length, and require of the present author two pertinent comments relating to the underscored sections.

Intellectual training is the formation of habits, and methods of learning, remembering, and understanding. Economics, it is held, uses the scientific method as applied to human science. . . . Clearly we hope that all learning involves intellectual training.

Certainly the economist's method is a different way of looking at problems. Pupils are taught to look at the world in a very different way--defining, assuming, establishing models, etc.

Aside from the prerequisite descriptive aspects of economics, it is not so much a body of knowledge but, in the words of Keynes, "a method rather than a doctrine, an apparatus of the mind, a technique of thinking."

⁶¹Ibid.

⁶²Ibid., pp.68-69.

So we place emphasis on pupil "understanding"; that is, pupils should not be required to rote learn, but rather able to go to proper sources of information, interpret it, and be able to comprehend such concepts as "real" and "money."

Peculiar to economics is the number of variables that the student must cope with at the one time.

 In being able to cope with complex variables and yet attempt logical interpretations certainly requires understanding. This special aspect of intellectual training is a most important justification for the subject, even although it opens up questions as to the age at which pupils can be expected to competently handle it.⁶³ (Underscoring my own)

It seems that Gregory's hope that "all learning involves intellectual training" is particularly significant in the present context concerning the establishment of appropriate objectives for the study of economics. The very point in insisting that the intellect be made prime, with regard to the priority of claim on the curriculum, arises out of the knowledge that indeed all learning does not involve intellectual training. "Learning" to accept that "ours" is a "free society" and "theirs" is not because, as students, we have been told that "ours" is a "free enterprise economy" and "theirs" is not, obviously does not involve an intellectual approach. As King and Brownell have pointed out, if prime priority is granted to Social Man (for instance) with regard to the development of the curriculum, the desired behaviors that represent the objectives "emphasize the socially and politically useful acts (the nation will prosper; the nation will be saved from stagnation and collapse) to the near exclusion of the speculative and the philosophical."⁶⁴ In consequence, "the structures of knowledge are not

⁶³ Ibid.

⁶⁴ King and Brownell, op.cit., p.19.

acknowledged permitting the removal of complex patterns of facts and hypotheses from their intellectual contexts."⁶⁵ Experience with a castrated discipline of knowledge, a biased "approach" or a "selected" theme will result (as indeed it has) in learning; but an intellectual experience entertains no such prostitutions of the discipline.

With regard to the second underscoring--prerequisite descriptive aspects of economics--it is sufficient to point out that even the attainment (by the learner) of so-called "prerequisite" facts can also involve the learner in an intellectual experience. Even a fact was once not known by the scientist. It was due to the development of a technique of inquiry, so that an idea could be explored and tested, that a fact was conceived. For the learner, then, such an approach will enable him to reach this so-called "prerequisite" stage which is, in fact, a rather pointless concept.

The third statement underscored--it opens up questions as to the age at which pupils can be expected to competently handle it--is the most pertinent concern of this study and as such will occupy the attention of Chapter IV. For the present it will suffice to note that the 11-12 year old child (Form 1, Grade 7) is at the threshold of the adult stage of cognitive development, and is equipped with the fundamental thought processes necessary for hypothetical thinking. Gregory's arguments concerning the age at which economics should be taught have been further developed in the article presently under consideration,

⁶⁵Ibid.

and in a second article in another place, and as such will be evaluated in the later chapter mentioned.

The fourth objective discussed by Gregory is termed "The Dual Role" and concerns the fact that some students take economics as a terminal subject, while there are others who will pursue the subject at the tertiary level. Apparently there are two problems arising out of these considerations: "Are these two aims of serving two differing groups compatible? Does this mean that different courses should be offered?"⁶⁶

It seems that if it were realized that it is for individuals (and not groups) at the present point in time that we teach, then the latter "issue" is resolved. The present writer contends that given the structure of economics, there should be as many different "courses" as there are individuals in the class.

In relation to the former "problem" it seems reasonable to suggest that given the priority of Intellectual Man's claim on the curriculum, the notion of "compatibility" does not arise. Schooling in economics and the technique of thinking that is the outcome, will surely meet the needs of the student whether or not he or she is concerned with economics at a tertiary level. Such is the pervasive and intrinsic worth of assigning to Intellectual Man prior claim on the curriculum.

Lastly, Gregory cites "Enjoyment" as an objective for the

⁶⁶Gregory, op.cit., p.69.

teaching of economics.⁶⁷ One could hardly disagree with the notion that learning should be enjoyable, if only because enjoyment in a particular learning situation is perhaps the most effective form of reinforcement for optimising the worth of that learned behavior. It seems that given that the greatest potential for enjoyment in learning arises out of curiosity, man's unique desire to learn, then discovery is the attendant act. If, however, it is accepted that such acts of discovery are to contribute in the end to a particular technique of thinking, then some directive criteria must be employed in establishing appropriate learning environments within which the child can satisfy his or her desire to learn. It is the disciplines of knowledge that have such well established directive criteria, since their very structure provides the guidelines within which acts of discovery will indeed contribute to an integrated technique of thinking. The point is, of course, that the disciplines of knowledge are the representations of the intellect of man, and thus the objective of enjoyment is more likely to be met via the granting of prior claim on the curriculum to Intellectual Man.

In conclusion, although definitively specific evaluation of statements relating to objectives for the teaching of economics in schools in Victoria cannot (in view of the nature of the statements under consideration) be achieved, the present author suggests that the above general evaluation of those statements has indeed been worthwhile.

⁶⁷Ibid., p.70.

Given the determinants that can affect, and have affected, the nature of the curriculum and the attendant pedagogical outcomes thereof, one must conclude that those statements have fallen far short of recognizing and recommending the outcomes that derive from the granting to Intellectual Man prior claim on the curriculum. In view of the issues that have been raised in this development of a philosophical context, one finds the following statement confusing:

Although the members of the Steering Committee felt that a statement of aims in the broadest sense was possible, they believed that such a statement would be of little value as a guide to curriculum or organization or teaching methods, and of little real significance even as a statement. The stated aims must be capable of being translated into a school program.⁶⁸

Although the Steering Committee has avoided an explicit commitment to a particular philosophical context, its members have nevertheless strayed tangentially toward the very context that seems appropriate, given the present ferment of dissatisfaction with our educational institutions. It is noted in Part II of the Report:

We consider no subject should be taught unless it satisfies, at an elementary level perhaps, the main canons of the subject as an intellectual discipline. Hence history, for example, should be discarded rather than distorted to attract the interest of young pupils. Young secondary school pupils should study, by methods appropriate to the discipline concerned. This suggests that they be given direct experiences, appropriate to their stage of development as historians, social scientists, artists, scientists or whatever.⁶⁹

Yet this position is still only a tangential recognition of a

⁶⁸ Education Department, Curriculum Advisory Board (Secondary) Interim Reports. (Melbourne: March, 1968), p.2.

⁶⁹ Ibid., p.7.

philosophical context developed in the present study. We may ask: Is it the teaching of the "intellectual discipline," or is it the fulfilment of a child's intellectual potential that is the end of education? Philosophical questions arise in both cases. These questions are obviously significant and are at the very crux of an understanding of educational ventures, issues which the Steering Committee is loathe to approach.

The present author contends that no subject should be taught unless it satisfies that end of education which is consonant with the desire to provide for the fulfilment of a person's intellectual potential. It is the disciplines of knowledge that, because they are the very representation of the nature of the intellect, provide the selection of subjects to meet that end. Given that economics is a structured discipline, encounter with its mode of inquiry is therefore appropriate.

The question of the age of the student shall be the next concern of the study. The evaluation of the intellectual capabilities of the child at the Form 1 level necessitates the development of a psychological context. It is within this context that one can more specifically define the nature of the intellect in operational terms and thus be able to more specifically evaluate other statements relating to the teaching of economics in the secondary school.

CHAPTER IV

TOWARD A PSYCHOLOGICAL CONTEXT

I. CURRICULUM DEVELOPMENT AND SCIENTIFIC INQUIRY

Few would disagree that the more the field of education approaches in its character the nature of scientific inquiry, the more likely it will be that greater returns will accrue given the investment of time in related research. The field is at present characterized by the development and postulation of innumerable theories and it is upon the nature of those theories that the quality of those returns is surely dependent. Marx,¹ in his discussion of the general nature of theory construction, has developed an overview of the basic elements that are pertinent in this respect. Reference to Figure 14 will provide a convenient introduction to the dimensions of the present context.

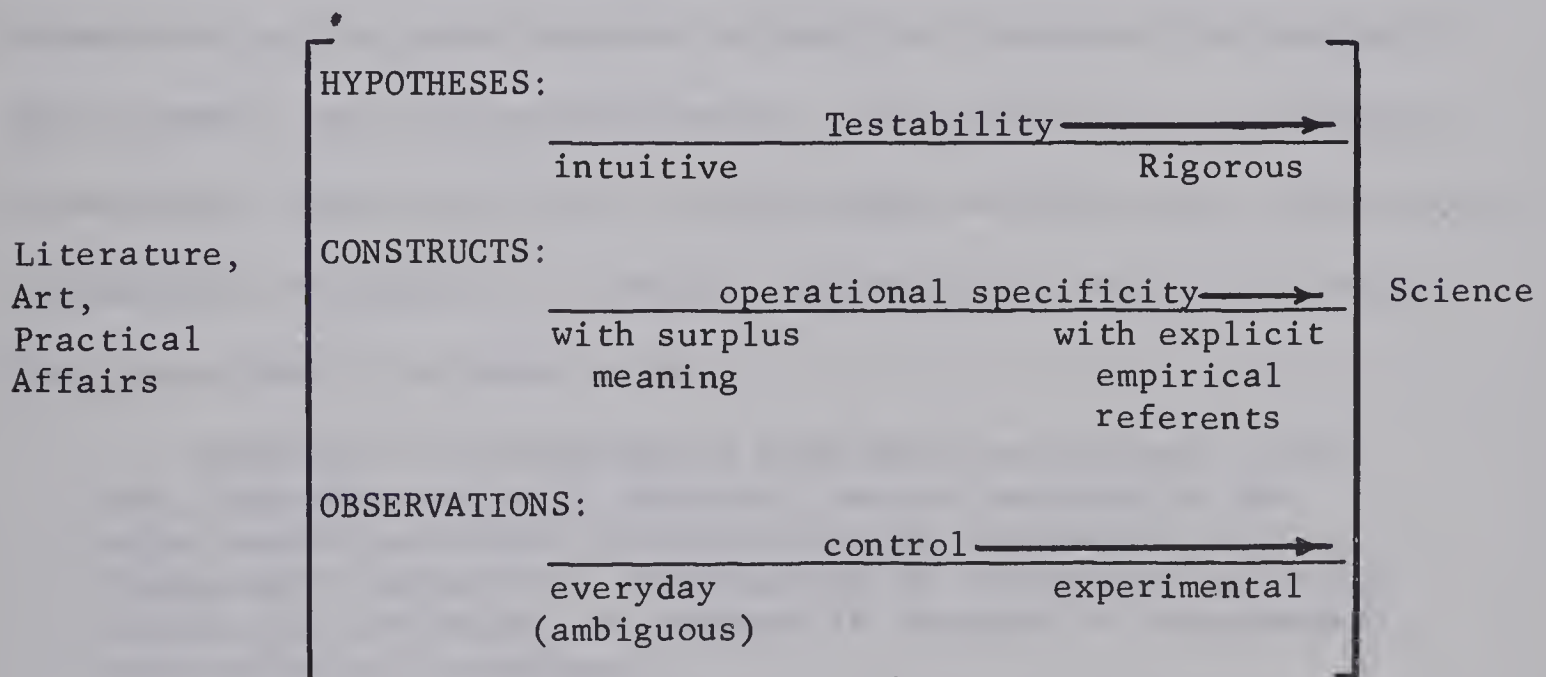


FIGURE 14²

THE THREE BASIC ELEMENTS OF SCIENTIFIC THEORY CONSTRUCTION

¹M.H. Marx, "The General Nature of Theory Construction," in Theories in Contemporary Psychology. (New York: The Macmillan Co., 1964).

²Ibid., p.11.

Self-explanatory as Figure 14 is, it is necessary to emphasize that given the assumption relating to the desirability that education be a scientific field of inquiry, then "education-type" statements (be they in the form of a hypothesis, a construct, or an observation) must at least tend to the right of each of the continua. Such statements as those that relate to the "intuitive-rigorous" continuum for the testability of hypotheses are adequate only to the extent that satisfactory logical relationships exist between the hypotheses and the data. The operational specificity of statements relating to the substantive units of which theories are composed (constructs) refers to "the clearly stated relationship of the construct to its empirical basis in operations producing the data."³ The avoidance of surplus meaning may only be achieved through the insistence upon "clarity of meaning in communication--the specification of empirical referents for concepts"--and secondly, upon the recognition of "the multiplicity of concepts, or meanings, which come from a corresponding multiplicity of operations, or empirical referents."⁴ Finally, regarding the control continuum, Marx notes that it relates to the:

. . .reduction in the ambiguity with which variations in the data (dependent-variable measures) may be assigned to the major conditions whose influence is under investigation (independent variables). Elimination of extraneous conditions (controlled variables) is achieved in the main by experimental and statistical techniques.⁵

The point is, then, that the above outline provided by Marx can conveniently be employed as a kind of criterion by which the procedural

³Ibid., p.12.

⁴Ibid.

⁵Ibid., p.11.

techniques of an educator in formulating a statement may be evaluated. For instance, the statements that have been analyzed in the preceding chapter, and which were related to the ends of teaching a course in economics, could in most cases be deposited at the extreme left of each continuum. Of course, such statements may be readily tolerated should they represent the vanguard of thinking on the matter, but such is not the case, given (at the very least!) the development of the logic relating to educational ends posited by King and Brownell. But one is not arguing that a philosophical position is unacceptable because it does not meet the requirements demanded for positions at the right of the continua. One is arguing that a philosophical context must be consistent with a psychological context to such an extent that the field under consideration is characterized as being a scientific field of inquiry, and which thus tends to the right of each of the continua. If such a characterization is indeed appropriate--and surely that is the case with the field of education--a philosophical position that complements a psychological context that is characterized as being scientific (as indicated by Marx) is to be preferred over any other, be it one that bears no complement to a psychological position at all, or one that bears complement to a psychological position that is more devoid of scientific character.

It is precisely because the position taken by Gregory does not bear complement to any psychological context, save for something even less convincing than "the collective wisdom of teachers,"⁶ that it must

⁶Gregory, "At what age should pupils be introduced to economics?" op.cit., p.26.

not be preferred--apart from the inconsistencies that have already been alluded to previously. Such denial of preference, of course, assumes that the King and Brownell position does (either implicitly or explicitly) bear complement to a psychological context, and preferably to one whose character may be described as being scientific. However, the immediate task is to outline the operational denotations to be ascribed to the conceptual base, namely, the nature of the intellect from a psychological point of view.

Figure 15 represents an outline of the steps to be taken in arriving at an assessment of the age at which it would seem appropriate to teach economics.

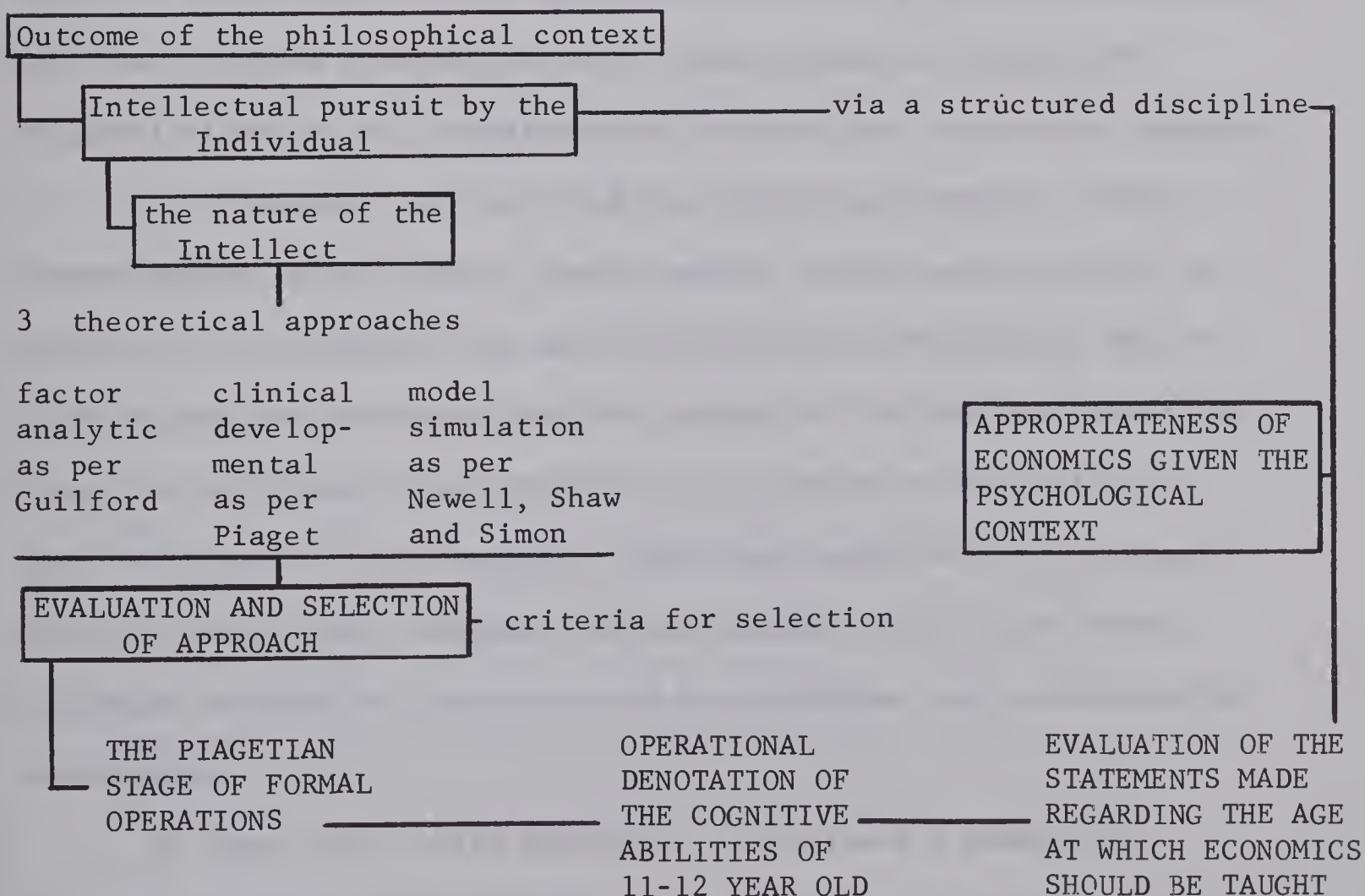


FIGURE 15

A PSYCHOLOGICAL CONTEXT

In order that some semblance of operational definition may be rendered to the concept, it seems reasonable to refer to the nature of the intellect in those terms that describe the nature of intelligence. However a dilemma arises in that the meaning that one attaches to the term must necessarily be a function of the conceptualization of the notion as a basis for inquiry into its nature. Divergent views of psychologists as to the "essential" nature of intelligence will determine not only the nature of the theoretical approach to their inquiry, but also the terminology used, significance of their findings, and the strength of the stated implications. Thus one cannot cite the component parts of intelligence per se and then search for a theoretical approach that has inquired into the nature of those elements because the original citation will simultaneously involve that theoretical approach.

To illustrate, if one cited the following elements: verbal-comprehension, word fluency, space, number, memory and induction as factors of intelligence that met the criteria established by the researcher who had conceptualized the notions of "primary abilities" and "specific abilities" (as opposed to an alternative view relating to the "structure of intelligence"), then that researcher's conceptualization, terminology, findings, and implications must be the focus. Otherwise problems of consistency of extrapolation and interpretation would arise.

It seems quite valid, therefore, to evaluate a number of theoretical approaches (three in this case), justify the selection of

one approach, and thus establish a base from which to evaluate statements concerning the teaching of economics to junior grades. Such a procedure seems conducive to the maintenance of a greater degree of consistency in the employment of the sophisticated vocabulary of the psychologist.

A. Three Theoretical Approaches:

As indicated in Figure 15, the three approaches to the theory of thinking are those which employ: (1) the factor analytic method; (2) the clinical method; and (3) the use of simulation techniques.

(i) The Factor Analytic Approach

This method has resulted in the identification of a vast number of "different intellectual factors," and Guilford:

. . .has suggested that these factors can themselves be classified with respect to at least three major fundamental ways in which they differ.⁷

Briefly, Guilford's model for the structure of the intellect incorporates, on one dimension, the types of processes and operations that are involved in thinking. These include memory, cognition, divergent production, convergent production, and evaluation. To cite Taylor's summarization:

Two of the five classes represented on this dimension would not ordinarily be included within the concept of thinking; these are memory, involving storage of information, and cognition, involving discovery, comprehension, or understanding, in other words, awareness of information. Divergent production involves the generation of new information from perceived and remembered information, as does convergent production; in divergent thinking, however, a variety of answers is produced, whereas convergent thinking

⁷D.W. Taylor, "Thinking," in M.H. Marx (Ed.), Theories in Contemporary Psychology. (New York: The Macmillan Co., 1964), p.478.

leads to one right answer or to a recognized best answer. Evaluation involves operations for determining whether information which is perceived, remembered, or produced meets certain criteria.⁸

The "products" of thinking occupy the second dimension of the Guilford model, and Taylor cites the author's own description of these factors:

Units of information are relatively segregated items with 'thing' character. Classes are sets of items of information the members of which have certain common properties. Relations are various kinds of connections between items. Systems are organized groups of interacting items. Transformations are changes, shifts, or reinterpretations. Implications are extrapolations of information to antecedents, concomitants, and consequents."⁹

The third dimension of the model is that relating to the classification of intellectual factors in terms of content, such types being, figural content, symbolic content and semantic content. A fourth type of content has been referred to as being "behavioral," sometimes called "social intelligence," but as yet this feature of the model is purely theoretical.¹⁰

(ii) The Model Simulation Approach

A second approach to the study of thinking, mentioned by Taylor, is that which relates to the notion that the individual should be considered as an information processing system. Quoting from their work, Taylor outlines such an approach as seen by Newell, Shaw and Simon:

1. A control system consisting of a number of memories, (*italics in original*) which contain symbolised information and are interconnected by various ordering relations. . . .
2. A number of primitive information processes, (*italics in original*) which operate on the information in the memories.

⁸Ibid., pp.478-9.

⁹Ibid., p.479.

¹⁰Ibid., p.480.

Each primitive process is a perfectly definite operation for which known physical mechanisms exist.

3. A perfectly definite set of rules for combining these processes into whole programs (italics in original) of processing. From the program it is possible to deduce unequivocally what externally observable behaviors will be generated.

At this level of theorizing, an explanation of an observed behavior of the organism is provided by a program of primitive information processes that generates this behavior (italics in original).¹¹

Taylor continues:

. . .viewed as a theory of behavior, a program is highly specific in that it represents only the behavior of one individual in one set of situations. If either the individual or the class of situations is changed, the program must be changed.

. . .important similarities may be expected among the programs which represent the behavior of the same individual in different situations, or among those which represent the behavior of different individuals in the same situations. On the basis of these similarities, a more general theory of the kind of behavior under study may be developed. Eventually this process should be able to produce a quite general program representing behavior in a wide variety of situations.¹²

(iii) The Clinical Approach

The work of Piaget is representative of the clinical approach to the study of thinking. Generally described as a genetic epistemologist, Piaget, in his work, is influenced by the problem relating to an understanding of knowledge itself. Of the clinical method, Taylor notes:

What Piaget calls the 'clinical' method is characterized by somewhat flexible questions put to the subject in an attempt to probe his understanding of concrete situations with which he is presented. If the subject does not reach

¹¹Ibid., p.485.

¹²Ibid.

the correct answer initially, the experimenter may try to elicit it by additional questions, a kind of 'testing of limits' by which one can judge whether the unsuccessful subject¹³ is truly incapable of formulating the correct answer.

The outcome of Piaget's work has been the identification of five general stages in the development of thinking from birth through to adolescence. Fundamental to Piaget's theory is the concept of adaption, a concept that reflects his early education in the field of biology. To quote from Taylor:

Adaption consists of two complementary processes, assimilation and accommodation, (italics in original) psychological analogies of the biological processes with the same name. Assimilation refers to the process of incorporating environmental stimuli into the existing cognitive structure; accommodation is the modification of cognitive structure by new stimuli impinging on the organism.¹⁴

B. Evaluation: and selection of approach

Given these three approaches to the study of the nature of the intellect, one should, because one is faced with the need, select that which appears most appropriate to the task at hand. Of course, a valid study would be, in itself, the analysis of the extent to which the three approaches are indeed different from one another. In the present study, however, it seems that one approach is far more appropriate than each of the others. That decision has been based upon the following evaluative considerations:

- (1) To what extent do each of the approaches bear to the right of Marx's continua?

¹³Ibid., p.481.

¹⁴Ibid., p.485.

(2) To what extent does each approach bear complement to the philosophical context developed above?

(3) To what extent does each approach assist the educator in identifying the intellectual potential of the 11-12 year old child?

(i) Evaluation of Factor Analytic Approach

Citing Taylor:

The factor analytic approach meets well several of the criteria of scientific theory construction. . . . The search for a smaller number of factors which will account for the intercorrelations among the empirically-measured variables exemplifies the principle of parsimony. Empirical data are obtained by carefully constructed and administered tests, hence, under well-controlled conditions. The operations defining the constructs are, though complex, clearly specified. The hypotheses are testable.¹⁵

Thus it seems that the factor analytic method meets well the first criterion, and that this method has much to contribute to the development of education as a science. However, as Taylor notes, one limiting factor that attends the employment of this approach arises out of the "fact that a single investigation involves the administration of a large number of tests to each of a large number of subjects."¹⁶ Thus, little time is expended per test, and reliability coefficients are suspect. But more importantly, those more complex processes of thinking which require longer and more complex testing items are more likely to elude the attention of the researcher.

In terms of the second criterion--to what extent does each

¹⁵ Ibid., p.489.

¹⁶ Ibid.

approach bear complement to the philosophical context?--certain aspects of the factor analytic approach require noting. With regard to the notion of a "model for the structure of the intellect," we find that no empirical justification for the use of the concept "model" exists.¹⁷ To begin with, the technique of factor analysis provides no basis for the classification of the factors identified: . . . "the three dimensions of the model result simply from a logical analysis of known factors."¹⁸ Thus, if a philosophical position is dependent upon the identification of the nature of the intellect, a psychological notion that describes that nature in extraneous terms of a structured "model"--such terms being a function of something other than the data upon which the very elements in that model were derived--then it is likely that surplus meaning will attach to the constructs of that theory of the intellect.

As indicated by the constructs-continuum in Figure 14, the higher the incidence of surplus meaning, the less operational specificity there will attach to a particular construct. The chastity of a philosophical position is threatened if it is partnered with a psychological context that carries a catalyst for misinterpretation and confusion--outcomes that attend the employment of a construct that embodies surplus meaning.

Taylor also raises the question concerning the use of the term "structure." He notes:

Factor analysis provides a list of what may be considered to be elementary processes of thinking. It may also be used

¹⁷Ibid.

¹⁸Ibid.

to determine the relative importance of these processes in solving complex problems (Guilford, 1960). But it provides no account of how these processes fit together in solving a problem or making a decision. At least some psychologists would prefer to use the term 'structure' in referring to this general problem, one perhaps better attacked by other approaches.¹⁹

Of course, it is not so much the method of factor analysis which presents the question of whether or not to accept the understanding of the nature of the intellect (that understanding being the outcome of the application of this technique), as it is the theoretical constructs which determine the thinking of the researcher in describing the intellect per se.

In terms of the third criterion--to what extent does each approach assist the educator in identifying the intellectual potential of the 11-12 year old child?--we make reference to Guilford's original article:

With about 50 intellectual factors already known, we may say that there are at least 50 ways of being intelligent. . . .

 The major implication for the assessment of intelligence is that to know an individual's intellectual resources thoroughly we shall need a surprisingly large number of scores. . . .

 If education has the general objective of developing the intellects of students, it can be suggested that each intellectual factor provides a particular goal at which to aim. . . This implies choice of curriculum and the choice or invention of teaching methods that will most likely accomplish the desired results.²⁰

¹⁹ Ibid., pp.489-490.

²⁰ J.P. Guilford, "Three Faces of Intellect," in Richard C. Anderson and David P. Ausubel, (Eds.) Readings in the Psychology of Cognition. (New York: Holt, Rinehart and Winston, Inc., 1965), pp.211,213)

The Guilford approach is one that is concerned with the individual, and not so much with a particular age group. But unfortunately the outcomes--a description of the nature of the intellect--are in one sense so general as to give little indication of the nature of the intellect as per maturational stage, and in another sense, so specific of the individual as to overwhelm the educator with the need to develop means of identifying the nature of each individual's intellect. It seems that the search for the smallest number of factors is in a stage of infancy with respect to a description of the nature of the intellect as per a particular age group. Also, because the factor-analytic approach lacks a longitudinal dimension, operational specificity, in terms of intellectual potential as per age group, is at present not developed to the extent that could readily be employed (exclusively) by the educator.

(ii) Evaluation of Model Simulation Approach

The simulation-approach to the study of thinking is that which "appears to offer the most promise; this promise, however, remains to be justified."²¹ The advantages of such an approach include the precision that attends the use of computer programming, and the facility for quick rejection of a micro-theory after the accompanying program failed to produce an adequate simulation of the particular element of human thinking under study. A by-product has been the "stimulating effect on research on the higher thought processes themselves,"²² since

²¹Taylor, op.cit., p.490.

²²C. Hovland, "Computer Simulation of Thinking," in Richard C. Anderson and David P. Ausubel (Eds.), Readings in the Psychology of Cognition. (New York: Holt, Rinehart and Winston, Inc., 1965), p.170.

researchers found themselves lacking in the ability to write programs. But since this approach is still virtually at the stage of being conceived, there is little point in considering the position further from the point of view of the three criteria, except to note that once the imbalance between the proportion of the research effort that:

. . . goes into new experimentation with human learners to determine their methods of handling various aspects of the problem, as compared to other efforts which stress programming the actual simulation²³

is overcome, one must expect that a greater measure of precision will attach to our understanding of the nature of the intellect. This point relates, of course, to the need for the educator concerned with the development of curricula to be aware of recent developments in the field of psychology. If, as in industry, parallel advances in the application of simulation theory to problems confronting the social scientists takes place, it should be expected that this approach to the study of human thinking would yield invaluable understandings of the nature of man's intellect.

It is the third approach, that adopted by Piaget, that the present author has selected as being appropriate in terms of the present study.

(iii) Evaluation of the Piagetian Approach

With respect to the continua developed by Marx, Piaget's approach according to Taylor "must be evaluated less favourably than that of Guilford,"²⁴ due to the absence of control in the former's method of

²³ Ibid., p.167.

²⁴ Taylor, op.cit., p.490.

obtaining data. The employment of the so-called "clinical" method does lend a somewhat less than specific character to the empirical referents of Piagetian constructs, especially when one considers, for example, the aspects of accommodation, assimilation, and equilibrium. Yet Taylor follows by noting the "extensive additions to empirical knowledge"²⁵ afforded by Piaget's theory.

Taylor sees the most interesting feature of Piaget's work as that which involves the employment of the concept of "stage," but only in that way whereby successive stages involve the "operation of different rule-systems."²⁶ A legitimate question arises: If the Piagetian approach, as seen by Taylor, does not adequately meet the criteria proposed by Marx, why does the present author choose to pursue this approach, in light of his discussion relating to the development of the science of education? A trite reply might explain that, since education is a relative newcomer (if indeed its journey has begun) to the field of scientific appraisal of itself, its position to the left is justified, and it should, therefore, not be dismissed as not adequately meeting the first criterion of evaluation/selection.

The inadequacy of this defense, however, necessitates a closer appraisal in terms of the dimensions mentioned by Marx. And it gives rise to the question: Is it indeed appropriate to expect the Piagetian approach (or any single approach by itself) to eventually reach the extreme right of the continua?

²⁵Ibid.

²⁶Ibid.

(a) Scientific Inquiry and the Piagetian Approach

Zigler²⁷ notes the point that for those who employ a "naturalistic methodology," it is believed that an experimental method is inappropriate due to the complexity of the problems being studied. Zigler, referring to Ausubel's position, notes that the phenomena involved "are spatially so gross and of such long duration that a naturalistic methodology is the only appropriate one."²⁸ Zigler continues:

The experimental method is viewed as being not only inapplicable but also as being slightly dangerous, on the grounds that the phenomena under investigation cannot be replicated or manipulated in the experimental setting. Efforts to do so must by necessity introduce artificial components which can only result in an erroneous conclusion concerning the relationship of the particular independent variables being investigated.²⁹

Thus, in a sense, it is inappropriate to consider the Piagetian approach in terms of the criteria developed by Marx, since, *prima facie*, the theoretical constructs of this approach are of a different "kind": they are different to those referred to by Marx as being capable of fruition (eventually) at the extreme right of the three continua. This position is characterized by rigorous hypotheses, constructs that have explicit empirical referents, and observations over which the researcher has experimental control.

Zigler's view is such that:

. . .scientific efforts in psychology which have no recourse to experimental investigations can only result in

²⁷E. Zigler, "Metatheoretical Issues in Developmental Psychology," in M.H. Marx (Ed.), Theories in Contemporary Psychology. (New York: The Macmillan Co., 1964), p.348.

²⁸Ibid.

²⁹Ibid.

inadequate theorising, and that those who argue against employing experimental methods in developmental psychology have an erroneous conception of the role of experiments in our efforts after understanding.³⁰

Thus Zigler is highly suspect of "grand systems" as they have been developed by Freud, Piaget and Gesell, but he notes the increasing tendency among developmentalists toward the employment of experimental efforts.³¹

Zigler also notes:

While such systems suggest great explanatory ability. . . they have not been formalized to the extent required to test their validity.³²

It is at this point that we should return to Marx's discussion, and in particular to the notions of discovery and confirmability. Marx writes:

The latter function, that of rigorously controlled tests of propositions, is the hallmark of science and has therefore been emphasized in this section; we have confidence in scientific propositions precisely because of their confirmation. *But*, (italics in original) we are also concerned with the significance or importance of scientific propositions, and in this regard confirmability has no direct relevance. That is, the significance of a proposition--its potential, theoretical or implied importance--is independent of the empirical support it may subsequently receive

. We need to recognize most explicitly that *both* (italics in original) discovery *and* (italics in original) confirmation are necessary to effective scientific work. The most ingenious theories are of limited scientific value until empirical tests are produced; the best confirmed proposition is of little value unless it deals with meaningful variables.³³

It is suggested, then, that the model of theory construction developed by Marx be refined in such a way that due account be given

³⁰ *Ibid.*, pp.348-349.

³¹ *Ibid.*, p.354.

³² *Ibid.*, p.360.

³³ Marx, *op.cit.*, p.13.

to the notion that conceptual distance arises at points prior to the extreme right of those continua. This notion is incorporated in Figure 16:

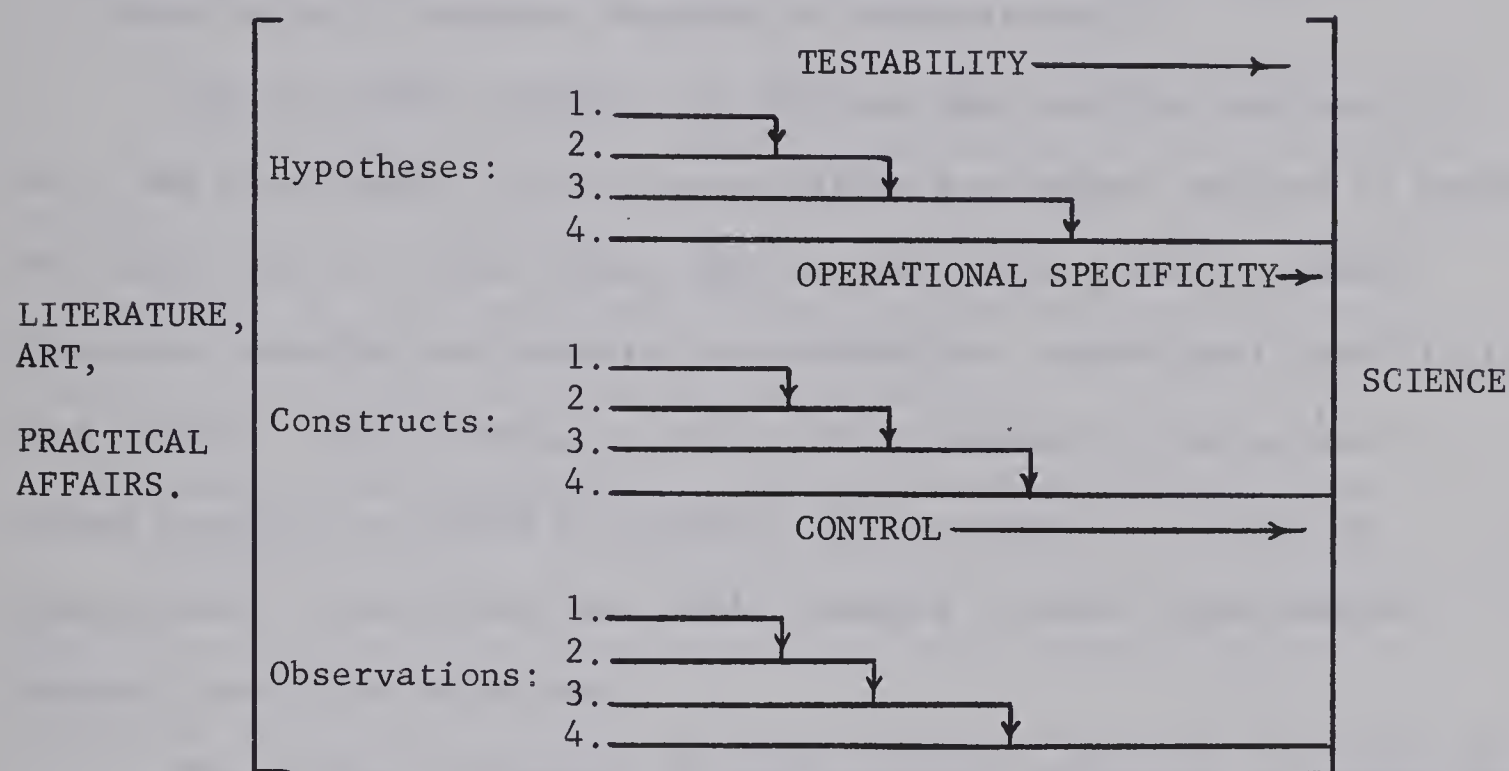


FIGURE 16

BASIC ELEMENTS OF THEORY CONSTRUCTION (REDEFINED)

We should note that conceptual distance is indicated by the presence of four continua for each of the three elements; that is, four positions with regard to four different theoretical orientations. Each of the four positions has developed to a certain extent, as indicated by the length of the continua, in its journey to the right. The fourth continuum in each case represents (say) that dimension which is true in the sense that it denotes the ascription of the consensus of scientific opinion. Each of the other three converging continua indicate contributions by researchers to this consensus. Each of the continua do not develop independently, since advance along one contributes to the

advancement of others--all the time reducing conceptual distance. This point is recognized by Zigler where he notes:

Its (Piaget's theory) prime value appears to rest not on its merit as a finished theory but rather on its susceptibility to translation, either in whole or in part, into more formally adequate theories or propositions.³⁴

One is loathe, however, to indicate the relative positions of, say, the experimental and the naturalistic approaches, and yet it should be noted that it is the former that has contributed most to those features described as referring to testability, operational specificity, and control. But the crux of the question relates to the nature of those concepts we should be testing, those concepts we should be operationally specifying, and those concepts to which experimental control should be subjected.

The further refinement of this necessary diversion is beyond the scope of the present study. And in one sense, little has been added by way of assisting the present author in justifying the selection of the Piagetian approach to the study of thinking, because the refinement in Figure 16 is such that the other approaches considered find a ready niche, as well they should. The first criterion for evaluation/selection, therefore, because of its open-endedness, cannot be employed as a justification for employing a Piagetian approach at the expense of the factor-analytic or the simulation approaches, except so far as this approach is tempered by the character of evidence derived from hypotheses to which a greater measure of confirmation has accrued.

³⁴Zigler, op.cit., p.362.

Also to the extent that Zigler is correct in his assessment that Piagetian notions may be readily translated into theories and propositions that logically lend support to those notions, then perhaps a measure of justification accrues to the selection of a Piagetian approach.

Obviously there is an implicit recommendation in this section to those concerned with the development of curricula, and that is not to overlook the complexities that relate to the establishment of a scientifically-based analysis of the curriculum.

(b) Epistemological Considerations and the Piagetian Approach

Considering the second criterion however--that is, to what extent does each approach bear complement to the philosophical context developed above--it is the belief of the writer that considerable justification is afforded by nominating the Piagetian position as being appropriate.

Piaget notes that the philosophical-psychological interaction of a position may be distinguished from two points of view. He notes:

One might first construct the epistemology of psychology, as one might treat the epistemology of, say, mathematics or physics. But one might also (and the second viewpoint is both more fruitful and particular to psychology) attempt to analyze epistemology as radiating outward not from the subject-psychologist, that is, from the scientist as he elaborates his science, but from the focus of the subject as the object of psychology, both in general (child, adolescent, civilized adult) and in particular (as psychology studies the formations of his perceptions, his concepts, his intelligence, in short, his general instruments of knowledge).³⁵

³⁵J. Piaget, "Psychology and Philosophy," in B.B. Wolman (Ed.), Scientific Psychology: Principles and Approaches. (New York: Basic Books, Inc., 1965), p.30.

"For whom do we teach?" was the concern outlined previously and it is that same concern that has influenced Piaget in his development of a theory of genetic epistemology. To quote further:

We apply the term 'genetic epistemology' to this study of the way in which the subject constructs and organizes his knowledge during his historical development (ontogenetic and sociogenetic). Genetic epistemology presupposes a psychological analysis, but it necessarily leads to an epistemological study treating the great problems of the theory of knowledge. In fact, the study of the construction of a structure of knowledge teaches us something of the nature of this structure, that is, of its epistemological mechanism: whether the structure has been derived from experience or has been constructed deductively; whether it derives from language alone (and thus remains purely analytic) or is synthetic and supposes operations or actions.³⁶

The notions that relate to (1)"a structure of knowledge,"(2)"the epistemological mechanism" that characterizes (3) "the nature of this structure," (4) the structure of a discipline (say, economics), and (5) to the idea that a discipline is a representation of a system of intellectual functioning give rise to the fascinating possibility that perhaps the concept of "structure" has denotations that are consistent with each of the expressed ideas.

The specific point of concern, however, is that relating to the epistemological dimension referred to by Piaget, since this is the dimension that, parsimoniously, would offer valuable insight into the nature of a consistent thread tying philosophy with psychology, and those with pedagogy. Depending upon the nature of the different kinds of factors distinguished by various psychologists as being significant

³⁶Ibid., p.31.

in the development of cognitive structures, so too will each "specific psychological signification. . . (involve) a different and well-characterized epistemological meaning."³⁷

Five kinds of factors are mentioned by Piaget; namely, "innateness or maturation," "social interactions," "physical experience," "actions by the subject upon objects," and lastly, the "equilibration factor."³⁸ The one conclusion arrived at by Piaget is stated thus:

. . . that the infinite varieties of knowledge, logico-mathematical or physical, never proceed from ready-made structures innate in the subject, nor from a simple abstraction from objects, but that they always suppose, in varying degrees, interactions between the subject and object, which makes indispensable, from the epistemological and not only from the psychological point of view, the consideration of the subject's activities.³⁹

This point emphasizes the notion that for the subject, particularly at the elementary levels, experience with the object is necessary in order that he will "discover what will subsequently appear from deductive evidence."⁴⁰ Each subject perceives an object in ways involving ordering sequences that are quite different from the perceptions of other subjects. There is no isomorphic relationship between the empirical laws of the object, and the way in which the subject has experience with the object. It is abstraction deriving from action with the object that characterizes the fundamental process of structuring, rather than abstraction from the object itself. The former abstraction is referred to as being "logico-mathematical,"

³⁷ Ibid., p.33.

³⁸ Ibid.

³⁹ Ibid., p.43.

⁴⁰ Ibid., p.36.

whilst the latter is referred to as being "physical."⁴¹ For each of these two types of experience different epistemological considerations attach, as is previously noted. To recapitulate though, the most fundamental type of experience--logico-mathematical, for which results are obtained through the subject's actions on real or symbolic objects--describes the means by which the subject "gradually abstracts" his logic from "the co-ordination of his own actions."⁴²

This notion, it seems, is pertinent to one's task of insisting upon a thread of consistency. The present writer sees here a fundamental similarity between the notions of man the user of systems of symbols to order his experience, which is manifested in its most refined forms in the intellectual disciplines, and that of cognitive structuring, a process described by Piaget as being the abstraction of logical constructs through experience with an action upon an object by the subject. One should insist that the development of curriculum incorporate those ideas from the various areas that are as fundamentally similar as those developed previously. All too often, curricular "models" blithely refer to psychology and philosophy per se, without referring to the more specific dimensions involved.

(c) Piaget's Notion of Conceptual Structuring

Thus the psychological dimension has been specified down to Piaget's notion of cognitive structuring, a notion that, even more specifically, denotes the process of abstraction that derives from the

⁴¹Ibid.

⁴²Ibid.

subject's experience with the object. With this in mind, other sources are drawn upon for support and elaboration.

Stott and Ball,⁴³ for instance, note in their discussion of Piaget's epigenetic theory, that:

Throughout this whole sequence of epigenetic stages portrayed by Piaget, the factor of experience plays an extremely important role. Coping with the environment, that is, interaction between the individual and his environment (assimilation and accommodation), constitutes experience. 'At every level, experience is necessary to the development of intelligence.'⁴⁴

In their summary of the present theoretical orientation, with respect to cognitive structuring, Stott and Ball are most generally in agreement with Piaget's position. The following statement is particularly pertinent:

On the question of its determining factors, when intelligence is defined as inherent potentiality, it is by definition, fixed by heredity. The genes determine the possibilities for development. They set the limits beyond which the development of functional capacity cannot go. But even when intelligence is defined as potentiality, its development, nevertheless, occurs always and at all levels through the interaction, or interchange, between organism and environment. Hence, an environment that is not optimum in terms of nutriment, stimulation, or other essentials, may not provide for optimum development. Actually the full potentiality for the development of mentality at any age is rarely reached.⁴⁵

Also supportive of Piaget's position is Taba⁴⁶ when she notes:

⁴³L.H. Stott, and R.S. Ball, "Intelligence: A Changing Concept," in Children: Readings in Behavior and Development, Edited by Ellis D. Evans. (New York: Holt, Rinehart and Winston, Inc., 1968).

⁴⁴Ibid., pp.299-300.

⁴⁵Ibid., p. 304.

⁴⁶H. Taba, "Teaching Strategies for Cognitive Growth," in E.M. Bower and W.G. Hollister (Eds.). Behavioral Science Frontiers in Education. (New York: John Wiley and Sons, Inc., 1967).

. . . the conceptual schemes as well as the cognitive operations undergo a constant reorganization. It is useful to visualize the dynamics of this process as a rotation of two types of activity. One is that of taking in the information and organizing it according to whatever conceptual scheme exists. At each point of his experience the individual fits the information he receives into the conceptual scheme he already possesses. Whether this conceptual scheme is adequate or not, new phenomenon have meaning only to the extent that they can assimilate into the patterns of concepts and relationships that already exist in the learner's mind

 However, when the requirements of the situation do not fit the current scheme or when the individual faces a problem or task that introduces a dissonance, the second type of activity is generated. An individual is forced to alter or to extend his conceptual scheme to accommodate new information.⁴⁷

Ausubel⁴⁸ notes:

According to the cognitive structure view, new meanings are acquired when potentially meaningful symbols, concepts, or propositions are related to, and incorporated within a particular individual cognitive structure on a nonarbitrary, substantive basis. The acquisition of word meanings is not a manifestation of conditioning or of rote verbal learning, but reflects the establishment in cognitive structure of a relationship of representational equivalence either between first-order concepts and concrete images or between higher order concepts and their critical attributes.⁴⁹

Berlyne⁵⁰ cites Piaget in support of his ideas relating to the notion of conceptual conflict. It is this notion, according to Berlyne,

⁴⁷ Ibid., p.171.

⁴⁸ David P. Ausubel, "Cognitive Structure and the Facilitation of Meaningful Verbal Learning," in Richard C. Anderson and David P. Ausubel (Eds.), Readings in the Psychology of Cognition. (New York: Holt, Rinehart and Winston, Inc., 1965).

⁴⁹ Ibid., p.74.

⁵⁰ D.E. Berlyne, "Toward a Theory of Epistemic Behavior: Conceptual Conflict and Epistemic Curiosity," in Robert K. Harper, Charles C. Anderson, Clifford M. Christensen and Steven M. Hunka (Eds.) The Cognitive Processes: Readings. (Englewood Cliffs, New Jersey: Prentice-Hall, inc., 1964).

that keeps "epistemic curiosity" alive, ensures the dynamic nature of the "epistemic process," and determines the directions taken by the "epistemic process."⁵¹ Berlyne writes:

Intellectual development embraces a number of attainments, amounting to new ways of organizing responses, symbolic and nonsymbolic. . . .most important, and striking of all, he (the child) gradually builds up more and more powerful and coherent logical structures, permitting him to conduct his thought processes with maximum flexibility, combined with consistency of outcome. It is noteworthy that, once the child is in possession of a logical structure, he does not usually justify a conclusion by mentioning experiences of external events that show that it happens to be true; he appeals to inference from general principles and evinces a conviction that what he says has to be true.⁵²

Innumerable studies have emphasized the notion of cognitive structuring. The present author emphasizes the idea that the notion is from a psychological point of view, essentially a definition of intelligence. Simplistically, a complex cognitive structure is indicative of a "high" intelligence and vice versa. A complex structure is facilitated by experiences with man's environment, experiences that, historically, have been refined and ordered through the intellectual disciplines. Intelligence is the ability to refine, analyze, and order experience, and these ideas are implicit in Piaget's definition of the construct. He writes:

To define intelligence in terms of the progressive reversibility of the mobile structures which it forms is therefore to repeat, in different words, that intelligence constitutes the state of equilibrium towards which tend all successive adaptations of a sensori-motor and cognitive nature, as well as all assimilatory and accommodatory interactions between the organism and the environment.⁵³

⁵¹Ibid., p.569.

⁵²Ibid., p.578.

⁵³J. Piaget, Psychology of Intelligence. (Paterson, New Jersey: Littlefield, Adams and Co., 1960), p.11.

And further, he notes:

. . .emphasizing the interaction of the organism and the environment leads to the operational theory of intelligence . . .According to this point of view, intellectual operations . . .constitute genuine actions, being at the same time something produced by the subject and a possible experiment on reality.⁵⁴

Again one finds the emphasis upon the individualization of the growth of intelligence. Intelligence is not something "out there" that is to be grabbed, but is, rather, a developmental process that requires interaction with the many environments of man as a catalyst. And since it is a process of structuring and restructuring, its development would surely be enhanced, if, in the formal educative setting, those many environments were presented initially in a fundamentally structural form; that is, in a form that provides the most scope for interaction, given a class of unique individuals. The present writer concludes, therefore, that the Piagetian approach to the study of thinking bears considerable complement to the philosophical context developed above. This is not to deny, of course, that other psychological positions do not bear similar complement; but, it is Piaget's essentially evolutionary conception of the development of cognitive structures that is appealing, especially because of the epistemological implications of such a conception. The trite notion "Education is life" seems to be a complimentary description of Piaget's concern for the study of man's intellectual functioning.

⁵⁴Ibid., p.16.

(d) Intellectual Capabilities of the 11-12 Year Old Child

Perhaps the third criterion of evaluation/selection--that is, to what extent does each approach assist the educator in identifying the intellectual potential of the 11-12 year old child--is the most pertinent to the author's overall task. One should suggest that the choice of Piaget's approach is particularly justified in this sense, for indeed he is certainly most explicit on this point and for those concerned with the development of curricula, extensive guidance is offered. Since the age of 11-12 years corresponds with the transition period between the stages of concrete and formal operations, it is in terms of this period that Piaget's research is most pertinent. To quote from Baldwin:⁵⁵

In the periods of concrete and formal operations, the child's thinking appears to be stabilized. It seems as if all the logical implications of any one belief are also present and available for his thought process. There are things that he does not understand, true enough, but he no longer gives the impression that he understands something, only to reveal two sentences later that he does not understand it after all.

According to Piaget, this stable, equilibrated type of thinking results from the organization of operational thoughts into intellectual systems. This organization makes it possible for the child to behave consistently and logically and to follow through the implications of his ideas.⁵⁶

Concerning, in particular, the stage of formal operations, Baldwin notes:

At the stage of concrete operations the child learns all the various groupings and is able to apply them to objects he meets in the concrete world. But among the groupings there are relationships that are necessary for hypothetical thinking,

⁵⁵Alfred L. Baldwin, Theories of Child Development. (New York: John Wiley and Sons, Inc., 1968).

⁵⁶Ibid., p.249.

which the child does not understand until he reaches the stage of formal operations. This stage begins at about the age of eleven and represents the adult stage of cognitive development.⁵⁷

C. Psychological Bases of the Economics Curriculum in Victoria (Australia)

Piaget, then, is quite explicit in his description of the intellectual abilities of the 11-12 year old child, and with this description in mind, one should return to Gregory's position for the purposes of analyzing his definitive statements relating to the teaching of economics in secondary schools in Victoria.

Gregory relates the point that, essentially, the educators in Victoria subscribe to Robbins'⁵⁸ arguments. A British university professor, Robbins strongly disfavours the teaching of economics before the university level. Because his arguments elicit strong support in Victoria, one should first analyze his definitive statements.

As Robbins himself notes, he is not presenting a "systematic survey"; but, rather, he is simply "thinking aloud."⁵⁹ He notes further that he has "never taught economics in a school."⁶⁰ His loud thoughts, therefore, are based entirely upon his experience as a Board of Studies examiner. His expressed attitude is that he "cannot resist the wish that the whole business of teaching economics in the schools had never begun."⁶¹ One of the two reasons offered for this attitude is that he

⁵⁷ Ibid., p.273.

⁵⁸ L.Robbins, "The Teaching of economics in Schools and Universities," The Economic Journal, (Dec. 1955)

⁵⁹ Ibid., p.580.

⁶⁰ Ibid.

⁶¹ Ibid.

. . .cannot get away from the feeling that economics is essentially a subject for grown-ups--at any rate if it is taught as anything like a theoretical system.⁶²

Presumably to support this notion, Robbins suggests that he is able--based on his inspection of examination scripts--to detect in the majority of students "a sense of immaturity of touch, of unreality of contents. . ."⁶³ Such is not the case, as Robbins notes, with the "more straightforward subjects" like "chemistry and physics", for instance.⁶⁴ He writes further:

In teaching physics or languages you can begin with the simple things and leave the more difficult until later on. But in economics at this stage you have to water down difficult things in order to make any beginning at all.⁶⁵

These notions are so absurd that they warrant little rebuttal. In the first place, he has ignored all the invalidity that attaches to using examination scripts as evidence to support the type of contentions offered by him. It is quite obvious that he indeed has not taught in a secondary school. Secondly, to suggest that physics and chemistry are "straightforward subjects" and that they are not "watered down" are equally useless observations. The greater success that seems to have accrued to the teaching of physics is more than likely due to the fact that the maxim "from the simple to the complex" was observed by both the teachers of the subject, and those who were responsible for the development of the curriculum. To proceed from the simple economic constructs is, presumably, to be accused of "watering the subject down." This unwarranted and inappropriate "defense of the

⁶²Ibid.

⁶³Ibid.

⁶⁴Ibid.

⁶⁵Ibid., pp.580-581.

subject" approach seems to be very typical in the educational setting as it exists in Victoria.

Robbins' second "ground for regret" arises out of his observation that more attention should be given to providing students with the opportunity to acquire a "good training in the basic school subjects."⁶⁶ This in itself is an irrelevant argument, since the basic school subjects are essentially the basic skills of reading, writing and numerical computation; and these, if they are to be effectively taught, require contextual subject matter, be it in physics, languages, literature or any of the social sciences.

A final point which demonstrates all too well the emptiness of Robbins' argument is that found in the following statement:

The trouble about this (a 'civics' type, 'more or less descriptive explanation of everyday events and institutions') is that it does not lend itself to easy examining. How are we to lay down an examination syllabus to test the results of instruction which, if it is to fulfil its proper function, must be essentially inconclusive, designed to stimulate and inform discursively rather than to provide a system of thought which can be tested by hypothetical examples.⁶⁷

Not only is Robbins demonstrating his and his associates' inability to construct appropriate testing procedures, he is also employing a most inappropriate notion--that is, ease of examination--when, presumably, as an educator, he is concerned with the development of an economics curriculum.

His opinions are not supported by any documentation of the psychological considerations whatsoever. He refers vaguely to objectives, but

⁶⁶ Ibid., p.581.

⁶⁷ Ibid., p.582.

does not specify the precise nature of those objectives. Thus there is little in Robbins' thesis that bears substantively on the question relating to the age at which children can "handle" economic constructs. Returning then to Gregory's thesis, we find him essentially in agreement with Robbins' "findings," where his expressed opinion is that "Earlier specialization in economics would be disastrous. . ."⁶⁸ And yet, Gregory concedes that much of "what we call economics" is taught below grade eleven in social studies.⁶⁹ Gregory emphasizes the point that we need to clarify "what sort of economics we desire to teach."⁷⁰ This issue represents a barrier to more fruitful consideration of the development of curricula for the teaching of economics in Victoria. The "analytical versus descriptive economics" argument is ever present. Even Robbins will suggest that descriptive economics is a more appropriate subject to be taught in secondary schools. But this argument has little or no validity. The very purpose of scientific endeavour in the realm of understanding man's behavior (the social sciences) is to describe and order his understanding of his experience. The tools used in attempting to refine his descriptions are the tools of analytical thinking. Man analyzes in order that he may describe. One of the most sophisticated analytical tools is the ability to abstract through experience with an environment. How close that abstraction mirrors the reality of an empirical event is surely not, in terms of

⁶⁸Gregory, "At what age should pupils be introduced to economics?" op.cit., p.22.

⁶⁹Ibid., p.26.

⁷⁰Ibid., p.22.

the philosophical context developed above, the immediate concern of the educator. Rather, his concern is for providing the child with the opportunity to interact with, and abstract from, his experience with the empirical event. It matters not that one child is operating at a grossly simplistic level of abstraction, and that others are employing an extended battery of analytical tools. It seems that this "analytical versus descriptive economics" argument connotes a defense of the sophistication of the discipline (and there is a whole new realm of argument). Whilst one is not arguing for the prostitution of the discipline, one is, nevertheless, arguing that it can be presented in terms of its most fundamental structural elements. Indeed, grade one students have been able to demonstrate surprising facility in the ability to abstract basic economic constructs. The program developed by Senesh⁷¹ was founded essentially upon Piagetian principles. Indeed, the Social Science Education Consortium (S.S.E.C)⁷² actually identified Piagetian postulates and developed a curricular rationale which incorporated experiences appropriate to the further refinement, within the context of a particular discipline, of the abilities possessed by children at particular stages of cognitive development.

The psychological dimension discussed above emphasizes the degree of sophistication in analytical thinking that has accrued to the

⁷¹L. Senesh, "The organic curriculum: A new experiment in economic education," The Councillor: Special Issue on Economic Education, Vol.21, No.1. (Chicago: Illinois Council for the Social Studies, March, 1960) and "Organizing a Curriculum Around Social Science Concepts," in I. Morrisett (Ed.), Concepts and Structure in the New Social Science Curricula. (New York: Holt, Rinehart and Winston, Inc., 1967).

⁷²I. Sigel, Child Development and Social Science Education. Publication No.III of the Social Science Education Consortium (March, 1966).

11-12 year old child, and yet the following statements are elicited in support of the contention that economics should not be taught below the grade 11-12 level, and for Robbins, not before the student has taken "another degree, or some other experience of practical life (eg. National Service)." ⁷³ Has not the child, by grade seven, had eleven years of practical life?

In one place Gregory writes, for instance:

The case for economics before the Leaving level (15-16 years age group) would have to be a case for descriptive economics.

We usually accept this age as an arbitrary level when we can expect from pupils powers of deduction and abstract reasoning. ⁷⁴

The present writer prefers to cite Piaget's contention that, by the age of eleven, the child is on the threshold of adult reasoning ability. Of course, that ability is crude in nature, but surely the function of education is essentially the refinement of the child's crude intellectual potential. The tools of economic analysis have not been demonstrated as being any less inappropriate than the tools of numerical analysis (which is indeed one of the tools of economic analysis) in developing the student's powers of deduction and abstract reasoning. However, doubt has certainly been expressed by some researchers. Danzinger, ⁷⁵ for instance, expresses a pertinent concern:

⁷³Gregory, "Teaching Economics in Secondary Schools," op.cit., p.74.

⁷⁴Gregory, "At what age should pupils be introduced to economics?" op.cit., p.24.

⁷⁵K. Danzinger, "Children's Earliest Conceptions of Economic Relationships (Australia)," The Journal of Social Psychology (1958, 47, pp.231-240).

With few exceptions, psychological investigations specifically concerned with concept formation in children have shown a marked preference for the study of concepts about the physical world rather than the social world.

One result of this trend has been the tendency to base theories on conceptual development entirely on the results of investigations of the child's thinking about the physical (italics in original) world

The danger in this trend is that the development of social concepts may be fitted into a theoretical strait-jacket. It seems essential that data be obtained on the growth of these concepts and that they be analysed so as to reveal the process of development that is peculiar to them.⁷⁶

The theoretical model developed in connection with physical constructs may indeed be inappropriate in relation to the development of social constructs. Concurring with Danzinger, Sutton⁷⁷ notes that there is evidence to support the belief that the development of social concepts follows paths of its own that do not fit in with the theoretical model elaborated in connection with physical concepts. However, as she reports Danzinger:

The stages of conceptual development do not owe their appearance simply to internal maturation, but depend to a large measure on the intellectual materials with which the child is provided.⁷⁸

So, just as Piaget's stages of cognitive growth are not age-specific tied, so too are Danzinger's four stages in the development

⁷⁶Ibid., p.231.

⁷⁷R.S. Sutton, "Behavior in the attainment of economic concepts," The Journal of Psychology, (53, 1962), pp.37-46; and "Behavior in the attainment of economic concepts: II," The Journal of Psychology (58, 1964), pp.407-412.

⁷⁸Sutton, "Behavior in the attainment of economic concepts," ibid.

of economic concepts. Rather it is the sequence of stages that is to be observed. A child, given appropriate materials and environments, may very well be at the stage of formal operations at the age of ten. The important point that arises is the fact that the development of intellectual facility is dependent upon the nature of those materials and environments. This point has not been invalidated by either Sutton or Danzinger. Indeed, they support it.

Sutton's study⁷⁹ employs the doubtful technique of interviewing eighty five children ranging from grades 1-6. No indication of the number of children in grade 6 (or for any grade) was given. The study was poorly reported. Even so, the summarized conclusion, it seems, is less at variance with Piaget's so-called "theoretical strait-jacket" than we were led to accept. She notes:

The result that a majority of replies, irrespective of age, intelligence, and socio-economic backgrounds, were in the beginning stages of conceptualization suggested a need for more external stimuli in the development of economic concepts, and raised a question about the generality of the condition.⁸⁰

In a later study Sutton⁸¹ developed and administered a test to determine the kinds of meanings children acquire and use at various ages with respect to "relatively unexplored" areas such as economics. The study was concerned with two questions:

(a) When a child of a given age is confronted with several alternative meanings of words in a relatively unexplored area, such as economics, which level of meaning--incorrect, concrete, functional, or abstract--does he choose as the best

⁷⁹ Ibid.

⁸⁰ Ibid., p.46.

⁸¹ Sutton, "Behavior in the attainment of economic concepts: II," op.cit.

meaning? (b) After instruction in the area, is there a difference in his choice of meaning?⁸²

Again the results of her study tend to support the position assumed by the present writer; that is, that 11-12 year olds are quite capable of abstract reasoning, given the opportunity to interact with materials relating to economic concepts. Sutton concluded that the results of her study indicate:

(a) that incorrect and concrete responses decrease with age, and abstract responses increased; and (b) that incorrect and concrete responses decrease significantly after planned instruction, and functional and abstract responses increased.⁸³

In another study conducted by Feifel and Lorge⁸⁴ the authors note that their results also support the findings of Piaget in evidencing changes in the conceptual level of development of children as they grow older. Studying the qualitative differences in vocabulary responses of children in age groups from six years to fourteen years, these authors demonstrate the course of development in terms of the five categories of response: (i) error, (ii) synonym, (iii) explanation, (iv) use and description, and (v) demonstration, illustration, repetition and inferior explanation.⁸⁵ The authors note:

It is apparent that at ages six and seven the children give the use and description types of response most often, and the explanation type of definition least often. At ages nine and ten, the synonym types of response are used most

⁸²Ibid., p.409.

⁸³Ibid., p.410.

⁸⁴H. Feifel and I. Lorge, "Qualitative differences in the vocabulary responses of children," Journal of Educational Psychology, (41, 1950), pp.1-18.

⁸⁵Ibid., p.9.

frequently by the children, the use and description types of definition are given less frequently than at ages six and seven, and the explanation type of response is given increasingly more often. From age eleven and up, the children very definitely use the synonym types of response most often.⁸⁶

So again, the evidence, apart from that offered in Piaget's model of conceptual thinking, indicates the abilities of the 11-12 year old child in the realm of deduction and abstraction. But finally, it is the work of the S.S.E.C. that, it seems, very readily negates the claim made by Sutton and Danzinger with respect to the possibility that the development of social constructs is incompatible with the Piagetian model. This consortium, as was noted previously, has identified various Piagetian postulates, and has built curricula for each of the fundamental social sciences on the basis of these postulates. The success of Senesh's program in economics very clearly demonstrates the valuable guidance offered those involved in curriculum development in the social sciences by those postulates.

It seems reasonable, therefore, to reject Gregory's notion about the lack of deductive and analytical facility possessed by 11-12 year old children.

Again returning to a concluding remark made in relation to the work of Gregory, one should note that he is far more open-minded on the subject than Robbins. Gregory writes:

Economics is frequently described as a difficult subject, yet we could well ask, "Are not all subjects difficult at an advanced stage?"

A working hypothesis often accepted is that 'Any subject

⁸⁶Ibid., pp.8-10.

matter can be taught to anybody at any age in some form that is honest.' The more immediate issue becomes 'when to teach what'--rather than to passively wait in expectation of being present with pupils who become at some stage ready to take economics as a subject. Professor Bruner states '. . .with sufficient effort and imagination, any topic can be rendered into an honest form that is appropriate to the level of comprehension of students of any age.' It therefore seems more sensible to investigate the kind of economics we should teach at a given level, rather than question its existence as a school subject purely on the grounds of its alleged difficulty.⁸⁷

Critics of the Bruner thesis, namely Krug⁸⁸ and Newman (cited by Krug), have pointed to objections about the notion of structure, but Bruner, like Piaget, offers an integrative dimension with which to bring together the philosophical and psychological contexts. Bruner's ideas on education, of course, were conceived out of his studies on the process of cognitive development. Being concerned with the study of the development of the intellect, he is also in a position to recommend to the educator, the means by which the intellect may be further refined and developed. Considering the nature of his research, we can readily employ the above quotation as supportive of the position developed herein.

Bruner's book, The Process of Education⁸⁹ is representative of that integrative dimension, a feature which is recognized by many educators involved in curricula projects in the United States of America. The essence of his guidance for the educator is represented in the following passages:

⁸⁷Gregory, "Teaching economics in secondary schools," op.cit., p.76.

⁸⁸M.M. Krug, "Bruner's new social studies: A critique," Social Education (Oct, 1966).

⁸⁹J. Bruner, The Process of Education (New York: Vintage Books, 1960).

Inherent in the preceding discussions are at least four general claims that can be made for teaching the fundamental structure of a subject, claims in need of detailed study. The first is that understanding fundamentals makes a subject more comprehensible. This is true not only in physics and mathematics, . . . but equally in the social studies and literature. . . .

The second point relates to human memory. Perhaps the most basic thing that can be said about human memory, after a century of intensive research, is that unless detail is placed in a structured pattern, it is rapidly forgotten . . .

Third, an understanding of fundamental principles and ideas, . . . appears to be the main road to adequate 'transfer of training.' To understand something as a specific instance of a more general case--which is what understanding a more fundamental principle or structure means--is to have learned not only a specific thing but also a model for understanding other things like it that one may encounter . . .

The fourth claim for emphasis on structure and principles in teaching is that by constantly reexamining material taught in elementary and secondary schools for its fundamental character, one is able to narrow the gap between 'advanced' knowledge and 'elementary' knowledge.⁹⁰

Here we find the researcher of cognitive structuring insisting that such a process can and should be employed by the teacher with her class. By presenting new subject matter in relation to its basic structure, the scope for the child to re-structure his understanding after interaction with the new material is greatly enhanced. Ausubel writes on this point when he notes:

. . . the most significant advances that have occurred in recent years in the teaching of such subjects as mathematics, chemistry, physics, and biology have been predicated on the assumption that efficient learning and functional retention of ideas and information are largely dependent upon the adequacy of cognitive structure, i.e., upon the adequacy of

⁹⁰ Ibid., pp.23-26.

an individual's existing organization, stability, and clarity of knowledge in a particular subject matter field (4). The acquisition of adequate cognitive structure, in turn, has been shown to depend upon two factors: (a) using for organizational and integrative purposes those substantive concepts and principles in a given discipline that have the widest explanatory power, inclusiveness, generalizability, and relatability to the subject matter content of the discipline; and (b) employing those methods of presenting and ordering the sequence of subject matter that best enhance the clarity, stability, and integratedness of cognitive structure for purposes of new learning and problem solving.⁹¹

Indeed, then, for the child to experience intellectual adventure, the discipline (because it is a structured portion of man's intellectual experience) becomes the means by which the process of refinement of the child's cognitive structure can most economically proceed. Experience with the intellectual tools of a structured discipline enhances the child's ability in using the most generally applicable intellectual tools, that is, the tools of analytical thinking and deduction.

Summary

The present chapter was introduced via the suggestion that, given a greater emphasis upon the nature of scientific enquiry in education, there would accrue to the field greater returns. It was also suggested that the more the character of the dimensions involved tended to bear to the right of Marx's continua, then the more scientific would be those dimensions. The writer chose the Piagetian dimension primarily because it tends to be the most age-specific approach to the study of intellectual behavior. Secondly, the Piagetian approach, and especially as it

⁹¹Ausubel, op.cit., p.108.

is enhanced by Bruner's concern for the intellectual development of the child, tended to bear a more explicit complement to the philosophical context developed in relation to the approach taken by King and Brownell. Because of these two criteria in particular, the educator involved in the development of curricula should expect high yields by employing the fruits of such research into the nature of the intellect, as demonstrated by the work of the S.S.E.C.

In terms of the first criterion--that is, the extent to which each approach tended to bear to the right of the continua suggested by Marx--the Piagetian approach has been much criticized. Ausubel, for instance, is most concise with respect to criticism of Piaget when he writes:

Two issues are paramount in regard to Piaget's delineation of stages of intellectual development. The first issue concerns the empirical validity of these stages, and arises because of Piaget's unsystematic and scientifically faulty methods of conducting his research and reporting his findings The second issue concerns the theoretical criteria that any (italics in original) designated stage of development must meet, irrespective of its empirical status.⁹²

This is, of course, a critical point; and yet, if one refers to the so-called "behaviorist" position--the position, it seems, that would bear further to the right of Marx's continua--one wonders how different a "hierarchy of mediating responses" is from a "cognitive structure." The general accusation of "mentalism," it would seem, is no less inappropriate for the notion of a "mediating response" as it is for a "cognitive structure." Gagne's cumulative learning model, however,

⁹²Ibid., p.14.

represents a position of considerable worth, but he also recognizes that the theories developed by Piaget and Bruner have "a great deal of substance to them."⁹³

When Gagne is critical of Piaget, it seems that he uses little more than terminological criticisms. After noting how Piaget observes the child involved in a conservation task and then proceeds to classify the types of abstractions made by the child, Gagne writes:

. . . what he achieves by so doing is still an abstraction which exists in his mind, and not in the mind of the learner. If the external observer assumes that because he can make this classification of such an entity as the principle of conservation, the same entity must therefore exist as a part of the learner's capabilities, he is very likely making a serious mistake

 They are useful descriptions of intellectual processes, and they are obviously in Piaget's mind. But they are not in the child's mind.

 They are merely external names for a collection of capabilities, as well as for developmental sequences on which these are built.⁹⁴

First, one could counter that Piaget does not intend that these labels are "in the child's mind." The process of classification and labeling of constructs is fundamental to scientific endeavour. Gagne himself surely does not expect that his "useful descriptions" such as "transfer" and "hierarchy of capabilities" are to be assumed as being "in the child's mind" either. Of course such terms are a set of "external names for a collections of capabilities." There is, however, no

⁹³R.M. Gagne, "Contributions of learning to human development," Psychological Review

⁹⁴Ibid., p.188.

quarrel there.

Gagne's cumulative learning model may well be one which:

. . .proposes that new learning depends primarily upon the combining of previously acquired and recalled learning entities, as well as upon their potentialities for transfer of learning.⁹⁵

But, from a pedagogical point of view, Gagne's position is essentially no different from Piaget's model. The so-called difference in emphasis relates to Gagne's insistence upon the fact that new entities are learned in a cumulative fashion, rather than through the processes of assimilation and accommodation. Given this difference in emphasis, however, epistemological and pedagogical considerations are essentially similar in the case of the two approaches, especially when one considers Gagne's closing statement:

Intellectual development may be conceived as the building of increasingly complex and interacting structures of learned capabilities. The entities which are learned build upon each other in a cumulative fashion, and transfer of learning occurs among them. The structures of capability so developed can interact with each other in patterns of great complexity, and thus generate an ever-increasing intellectual competence. Each structure may also build upon itself through self-initiated thinking activity. There is no magic key to this structure--it is simply developed piece by piece. The magic is in learning and memory and transfer.⁹⁶

Indeed, to deny the potential for tempering a chosen psychological context with the strength of findings from other psychological viewpoints would be foolish. Such tempering should add to the scientific rigor of Piaget's research (as indeed it has in recent years). Especially since Piaget is not overly concerned with the pedagogical

⁹⁵Ibid., p.189.

⁹⁶Ibid., p.190.

extensions of his ideas, other dimensions are required; and for this reason, Bruner's notion of structure was chosen. That other notions must be chosen and integrated with the direction given by Piaget is emphasized by Galperin when he writes:

Hence it is clear that in the study of intellectual development, the description of separate stages, even if this description is made by such a penetrating master of psychological analysis as Piaget, states merely the achieved conditions and cannot give sufficient basis to judge of process of development or dynamic forces.⁹⁷

But it is even these achieved conditions, which in the case of the 11-12 year old child is the ability to engage in abstract reasoning, that Gregory and Robbins choose to ignore. Even though they are "merely" the achieved capabilities of the 11-12 year old child, it seems essential that these be the fundamental considerations of initial importance for the educator concerned at the outset with the development of curricula.

To conclude the present section, one should note firstly, that the Gregory-Robbins type of position, relating to the ability of the children who comprise the 11-12 year age group in the learning of economic concepts, must be rendered as being unacceptable. Virtually devoid of any attempt to consider the psychological variables involved, the arguments must therefore be considered too vague and therefore offering no guidance for those involved in the development of curriculum. Second, the writer has postulated one possible psycho-

⁹⁷P.I. Galperin, "Towards research of the intellectual development of the child," International Journal of Psychology (Vol.3, No.4, 1968), pp.257-271.

logical context upon which to build such curricula as are appropriate for the child on the threshold of formal abstract reasoning. This context, necessarily, should be buttressed with evidence from whatever other position there may be, so long as the character of the intimately related philosophical context is not adulterated. Third, it would seem reasonable to conclude that the philosophical arguments outlined previously have indeed been translated into an operationally specific psychological context. Thus a most important thread of consistency initially required of those involved in curriculum development--that is, the assurance that one's philosophical viewpoint is manifested in the scientific base of the curriculum, namely the psychology of learning--has been attained.

CHAPTER V

TOWARD A PEDAGOGICAL CONTEXT

An attempt has been made in the previous chapters to conceive of each expressed thought in terms of a theme that eventually would be consistent with the pedagogical context to be now developed. Implicit assumptions have been made, of course, namely with respect to the quality of the teaching force, the availability of astute administrative personnel, and financial considerations. These factors, although not referred to in any depth in this study, are nevertheless extremely important. It is patently naive to consider the ideal of individualization of instruction as being attainable whilst at the same time ignoring the fact that the supportive technology and quality of teaching force are essential prerequisites.

The emphasis has been upon the need to establish a series of learning environments that take cognizance of the cognitive abilities of the 11-12 year old child, and cater to the further unfettered refinement of those intellectual abilities. It was strongly suggested that the most refined systems of analytical thinking so far devised by man be the vehicles for such intellectual pursuit and that, indeed, such disciplines of knowledge be conceived of as nothing more than vehicles, the structure of which should give the greatest scope for child-environment interaction. That the study of economics represents man's attempt to order one part of his experience in a disciplined, scientific manner renders the educator responsible for giving the field due consideration when projects involving the development of curricula are being contemplated.

I. DIMENSIONS OF A PEDAGOGICAL CONTEXT

The more specific consideration of a pedagogical context might be dealt with over a number of related dimensions. In the first place, a consideration of "economics as a structured discipline" might be appropriate. From a pedagogical point of view such a consideration would involve an analysis of the structure of the subject area, both in terms of its complexity and its most fundamental constructs. Given the philosophical context developed above, such a structure would need to be seen in a transcultural sense, thus avoiding the legitimate charge of ethnocentrism that may be directed at much of the curricula of western countries. Such a perspective would involve also, a consideration, in greater depth, of the notion of structure as espoused by Bruner,¹ Schwab,² Krug,³ a critic of Bruner's notion of structure, along with Newman (cited in Krug), should also be given due reference. Newman, in particular notes:

If the existence of structure is mainly a function of the scholars' ability to construct it, then there is no logical basis for assuming that any given discipline has a structure.⁴

However, important as this dimension is, it has not been selected as being the most appropriate for the present study. Such will also be

¹J. Bruner, The Process of Education. (New York: Vintage Books, 1960); also Toward a Theory of Instruction. (New York: W.W. Norton and Company, Inc., 1966).

²J. Schwab, "The concept of the structure of a discipline," The Educational Record (Vol.43, July, 1962).

³M.M. Krug, "Bruner's new social studies: A critique," Social Education, (Oct, 1966).

⁴Ibid., p.401.

the case with the other related dimensions that are briefly considered before referring to the dimension considered most appropriate in the development of a pedagogical context.

Secondly, the dimension relating to "economics and the economist" might be considered. The importance of this dimension is demonstrated by the action taken by several groups involved in the development of curricula. At Woods Hole, for instance, prominent physicists, mathematicians, biologists and chemists gathered to determine, with educators, the nature of the course of future efforts in the field of curriculum development. The S.S.E.C. is a parallel venture in the social sciences. Quite obviously, such a task is beyond the scope of the present study, and so, indeed, is a comprehensive review of the literature of the economists. However, in the appropriate section of this chapter, the ideas of Polyani⁵ will be briefly referred to, particularly in view of the transcultural character of his suggestions for the study of man's economic behavior.

A third possibility might involve a discussion of "economics and the social sciences," and in particular, a consideration of such interdisciplinary approaches as that proposed by the Statewide Social Sciences Study Committee to the State Curriculum Commission⁶ of California. Such a dimension would emphasize the interrelatedness of the modes of inquiry employed by the various social sciences.

⁵K. Polyani, Primitive, Archaic and Modern Economies with Introduction by George Dalton. (New York: Doubleday and Co., Inc., 1968).

⁶Statewide Social Sciences Study Committee, Unpublished Report to the State Curriculum Commission of California, "Proposed K-12 Social Sciences Education Framework"(October, 1968).

Three other dimensions might include a consideration of "economics and the school in society," "the philosophy of economics," and "economics and the Joint Council on Economic Education (J.C.E.E.) and the S.S.E.C."

The present study, however, was conceived out of a concern for the need to emphasize the unique individuality of each child. The philosophical context was directed at the establishment (or reassertion) of a frame of reference that rendered expression to the notion that that individuality is best enhanced through a concentration upon intellectual pursuit. The psychological context was developed with a view to the expression of the intellectual abilities of the child observed. Whereas the immediate learning environment for the child is a point in time and space at the moment of interaction between child and stimulus context (be it concrete or symbolic), so too must the perspective of a pedagogical context reside. This chosen dimension will be referred to as "economics and the child." Such a dimension, of course, does not deny the need to develop the necessary, detailed programs of study. Such programs per se tend, however, to avoid explicit expression of the individuality of the children for whom (presumably) the programs are designed. It is the writer's concern for rendering that expression explicit that accounts for the reversal in the procedure of suggestion for curricular reform. Expressed another way, it is the strategies of instruction that should characterize the nature of the curricular content, sequence and depth. Given the philosophical context, it is from the extent to which each child demonstrates facility with the tools of analytical thinking that the structuring of appropriate learning en-

vironments should proceed. Thus, the disturbing trends in curriculum developments mentioned at the outset of the study are pulled into greater relief. The packaged curriculum may ignore the "starting point" for each child. The statewide/nationwide programs may tend to assume a (or too few) "starting point(s)." One could argue, of course, that an astute teacher should be able to recognize when and for which child such materials are appropriate. It would seem though that the astute teacher is a rare find given the widespread tendency to let the kit "do" the teaching, an attitude which is readily reinforced by those exponents of the viability of the technology of education, and by those who market "teacher tested and approved" materials. Of course, the teacher who "has to get through this chapter" is reinforced in that attitude by the traditional manner in which curricula are composed, and by the traditional emphasis upon the segmentation of students and the attendant procedures of evaluation and reporting. The given is the "amount" of course to be "covered." The present writer suggests that the given be the assumption that each and every child be accorded the appropriate opportunity to learn, and that that learning consist of the further refinement of his demonstrated abilities with the tools of intellectual thought, however crude or refined they may be at the outset of the learning experience.

A. Economics and the Child

One should develop, briefly, an understanding of the connotations subscribed to by the writer when reference is made to the term "economics." The implication made throughout this paper has been that the term refers to a structured discipline. Substantively, then,

economics is characterized by the features related by Schwab.⁷ Schwab writes:

The structure of a discipline consists, in part, of the body of imposed conceptions which define the investigated subject matter of that discipline and control its inquiries.
 A second significance becomes visible if we look at a further consequence of the operation of a conceptual structure in inquiry. It renders scientific knowledge fragile and subject to change; research does not proceed indefinitely on the basis of the principles that guided its first inquiries. On the contrary, the same inquiries that accumulate limited knowledge by the aid of assumed principles of inquiry also test these principles. As the selected principles are used, two consequences ensue. Knowledge of the subject unfolds; experimental techniques are refined and invented. The new knowledge lets us envisage new, more adequate, more telling conceptions of the subject matter. . . . The effect of these perennial renewals of inquiry is perennial revision of scientific knowledge.

 In the process of revision, improvement of principle is sought in two different directions. On the one hand, more valid (italics in original) principles are sought, principles which will embrace more and more of the richness and complexity of the subject under investigation. On the other hand, principles of wider scope (italics in original) are sought, principles which will embrace a wider range of subject matters, which will reduce what were before considered as separate and different phenomena to related aspects of a common kind or source

 The successful search for principles of greater scope has led to developments of a parallel kind. As the scope of a set of principles enlarges, so does the coherence of the body of knowledge which develops from it, the interdependence of its component statements, a fifth significance.

 A sixth significance of conceptual principle to education is quickly told. Different disciplines have widely different conceptual structures.⁸

These six significant features represent an extension of the fundamental importance attached to the concept of structure by

⁷Schwab, op.cit.

⁸Ibid., pp.199-202.

Bruner.⁹ The concept of structure is widely (although not exclusively: Krug,¹⁰ Taylor¹¹) accepted by educational theorists, and little else need be added here with respect to the substantive nature of the concept. Schwab neatly sums up the fundamental importance of such a concept, given the pedagogical point of view, when he writes:

In brief, truth is a complicated matter. The conceptual structure of a discipline determines what we shall seek the truth about and in what terms that truth shall be couched. The syntactical structure of a discipline is concerned with the operations that distinguish the true, the verified, and the warranted in that discipline from the unverified and unwarranted. Both of these--the conceptual and the syntactical--are different in different disciplines. The significance for education of these diverse structures lies precisely in the extent to which we want to teach what is true and have it understood.¹²

So far as economics is concerned a definition is in order, and to this task Robbins¹³ has addressed himself. Robbins notes:

Economics. . .is concerned with that aspect of behavior which arises from the scarcity of means to achieve given ends. It follows that Economics is entirely neutral between ends; that, in so far as the achievement of *any* (italics in original) end is dependent on scarce means, it is germane to the pre-occupations of the economist. Economics is not concerned with ends as such. It assumes that human beings have needs in the sense that they have tendencies to conduct which can be defined and understood, and it asks how their progress towards their objectives is conditioned by the scarcity of means--how the disposal of the scarce means is contingent on these ultimate valuations.¹⁴

⁹ Bruner, The Process of Education, op.cit.

¹⁰ Krug, op.cit.

¹¹ R.D. Taylor, Structure of a discipline: An examination of the concept and its implications for K-12 curriculum planning. (Unpublished Doctoral Dissertation, Michigan State University, 1967).

¹² Ibid., p.205.

¹³ L. Robbins, An Essay on the Nature and Significance of Economic Science. (London: Macmillan and Co. Ltd., 1962).

¹⁴ Ibid., p.24.

Whether Maher's¹⁵ note that Robbins' essay is "largely microeconomic in spirit" is valid or not, the above definition is quite valid for one's present purposes. The definition does not exclude considerations of a microeconomic character. It is with such a definition in mind that Maher, the Senior Economist with the J.C.E.E., proceeds to develop for "pedagogical convenience,"¹⁶ the structure of economics. Concluding his chapter entitled "What is Economics?" the author recapitulates upon the five-fold division he has developed. He writes:

Except for the first point, science readiness, the list is a reiteration of the structure of the discipline.

1. Science readiness

Example: units of measure, the indirectness of scientific information, operational definition of ideas, testing of hypotheses with factual observation, the notion of multiple causality of events.

2. Categorization

Resources, production, outputs, consumption, and objectives (satisfactions).

3. Identification of relationships

Price relationships among outputs and resources.
Substitution relationships among resources in production and among outputs in consumption.

4. Combining categories and relationships into systems

Attaining the "optimal" operation of a system requires a guiding criterion of performance.

5. The whole economy as a single system.¹⁷

At this point, Maher discusses very briefly the fact that ease of teaching and learning might generally proceed, given the following order of presentation: categorization, relationships, subsystems, and aggregate system. But he adds that between the two extremes:

¹⁵J.E. Maher, What is Economics? (New York: John Wiley and Sons, Inc., 1969).

¹⁶Ibid., p.51.

¹⁷Ibid., p.52.

. . .there is room for wide variation. Some problems in categorization are very difficult indeed and require the most mature consideration on the part of adult minds. On the other hand, some problems of relationships and of simple systems can easily be grasped and, in fact, are being grasped in the public schools at the level of kindergarten and first grade.¹⁸

This last point tends to be supported by the studies conducted by Larkins,¹⁹ Sutton,²⁰ and Spears,²¹ and is supportive of the major issue raised with respect to the psychological context.

Given, then, a working definition of the nature of the structure of economics, one should briefly mention another important consideration that is pertinent to the development of a pedagogical context. That consideration relates in part to the question raised by Gregory²² namely, "What sort of economics?"

The writer's emphasis upon an intellectual theme would indicate that the structure of the discipline should necessarily manifest a scope that is catholic in orientation. That is, the parameters of the discipline are such that the consequent learning renders the student

¹⁸
Ibid.

¹⁹ A.G. Larkins, "Assessing achievement on a first-grade economics course of study," (Unpublished Doctoral Dissertation, Utah State University, 1968).

²⁰ O.R. Sutton, "Graded economic concepts for use in the elementary school," (Unpublished Doctoral Dissertation, The University of Tennessee, 1967).

²¹ S. Spears, "Children's concept learning in economics under three experimental curricula," (Unpublished Doctoral Dissertation, University of California, Los Angeles, 1967).

²² A. Gregory, "At what age should pupils be introduced to economics?" General Journal of the Victorian Commercial Teachers' Association. (Vol. 6, December, 1965), pp.22, 24-26.

capable of considering the implications of the application of a learned economic construct, given any politico-socio-cultural context. George Dalton in his introduction to Polyani's book includes a quotation from Goodfellow to describe the nature of Polyani's concern with respect to the structure of economic theory:

The aim of this book is to show that the concepts of economic theory must be taken as having universal validity . . . the proposition that there should be more than one body of economic theory is absurd. If modern economic analysis with its instrumental concepts cannot cope equally with the Aborigine and with the Londoner, not only economic theory but the whole of the social sciences may be considerably discredited. . . if (economic theory) does not apply to the whole of humanity then it is meaningless (Goodfellow 1939: 3,4,5).²³

These issues briefly touched on, are most important with respect to the broad frames of reference that are required to consolidate the philosophical-psychological-pedagogical thread. But, as indicated above, the need to focus explicitly on the child has been overlooked by educational theorists concerned with curriculum development. The writer suggests that a curriculum has little meaning, as either an instrumental or guidance device, if that focus is restricted to the introductory platitudes that traditionally gild curricular objectives.

B. The Child in Interaction with a Structured Environment

In his careful and succinct discussion relating to the attainment of concepts, Sigel²⁴ makes the following comments:

²³ Polyani, op.cit., p.xxviii.

²⁴ I. Sigel, "The Attainment of Concepts," in Review of Child Development Research, Vol. 1, M.L. Hoffman and L.W. Hoffman (Eds.) (Hartford: Connecticut Printers, Inc., 1966).

The most direct application of the insights and knowledge available from this review is for curriculum development and diagnosis of the child's intellectual status. In view of the findings on stages of concept attainment, curricula could be organized to take these into account.

If the stage-dependent conceptualization continues to hold up, it can provide a valuable ordinal scale for diagnosing the child's intellectual ability. Determining which stage a child is in enables the diagnostician to know those already achieved and what the child's next steps are to be.²⁵

Since researchers, including Piaget, have found that it is the sequence of stages that is invariant rather than their being a strict tying of age to stage, the Form 1 class of 11-12 year olds will not be a homogeneous group of children, all at the stage of formal operations. Indeed it is trite to say this, given our knowledge of the range of differences that occurs in any group of children. But it would seem that one needs to repeat the exhortation: "cater to individual differences," and even further, make this the central focus of a curricular proposal.

For each individual, prior experience with the varied aspects of his environment becomes incorporated into his cognitive structure. The nature of his cognitive map is dependent upon environmental stimuli. In order to purposefully modify that structure, the teacher should diagnose the parameters of that structure prior to the structuring of an appropriate learning situation. If the stimulus context is to be appropriate, then the diagnostician must surely have to be aware of the prior level of understanding possessed by the child. To illustrate: if we assume that the teacher has arrived at a point whereby the introduction of the concept of inflation is a logical progression for a

²⁵Ibid., p.242.

child from previous learning, it should be incumbent upon the teacher to determine the nature of that child's facility--in terms of readiness --to cope with the concept. One is advocating here a kind of pre-test to determine the degree to which each child is capable of handling concepts related to the fundamental nature of the concept of inflation. Fundamentally, inflation is a concept involving simple mathematics. By administering a situation incorporating a number of problem-solving tasks, correct responses to which would indicate facility with a range of concept difficulty, the teacher should, on the basis of each child's number of correct responses, direct each child to learning materials that also range in complexity from simple or concrete to difficult or highly abstract. One child may thus be learning the concept of inflation through the use of concrete objects such as coins whereas another may become involved in more sophisticated problems involving, say, the use of index numbers of cost-of-living and wage rates.

The essential point here is that the mode of inquiry, the related content, the nature of the materials and the choice of instructional mode are all determined by the degree to which the child is ready to cope with the concept to be presented.

The writer proposes, therefore, that for the development of curriculum, the teacher is in the prime position. It is she who is most readily able to observe the nature of the variables operating within the learning environment. Since it is she who should have the task of determining the nature of the parameters of prior learning, it is she who must be able to determine the nature of subsequent learning experiences. It is she who is directing the course of change in the

individual's behavior, and it is she who is most readily able to perceive such behavior as being uniquely individual.

To speak of "the child centered curriculum" is probably out of fashion, but there does seem to be a return to the appreciation of the viability of such a concern. Waetjen for instance writes:

A child uses his cognitive map to make predictions from the past to the present situation. In so doing he assumes that the present environment is identical to or highly similar to what it was in the past. Ordinarily this is a good assumption and benefits the child since his expectancies permit him to organize in such a way as to make optimal use of both time and resources. What must be emphasized is that the individual is actually making hypotheses about the stimuli that he will be receiving. What happens if the anticipated stimuli are not encountered?²⁶

And, Passow writes:

Learning 'capacity' of young children is one of the major criteria among several in determining appropriate curricular experiences.²⁷

That an indication of the child's cognitive structure is required before the arrangement of a pertinent and appropriate stimulus context (new learning materials) is indicated in the following passage:

The novel stimulus is like all other novel stimuli in the sense that it has the same potential capacity for inducing conflict in the individual. The role of conflict in epistemic behavior is central. For example, when the novel stimulus is encountered it evokes in the person a host of possible responses.

²⁶W.B. Waetjen, "Curiosity and Exploration: Roles in Intellectual Development and Learning," in A.H. Passow and R.R. Leeper (Eds.), Intellectual Development: Another Look. (Washington: Association for Supervision and Curriculum Development, 1964).

²⁷A.H. Passow, "Intellectual Development: Another Look- An Introduction," in A.H. Passow and R.R. Leeper (Eds.), Intellectual Development: Another Look. (Washington: Association for Supervision and Curriculum Development, 1964).

Some of these possible responses are incompatible, therefore causing conflict and arousing curiosity. Greater uncertainty or conflict is caused the more nearly the possible responses reach equiprobability, i.e., the more nearly each is similar to all others as being the proper response to be made in a given situation.²⁸

Suchman²⁹ might perceive the writer's arguments as favouring what is referred to as "engineered learning." The present writer, however, would not make the dichotomy that Suchman does in the following passage:

It is possible for the teacher to engineer conceptual re-organization in a child and to bring about the child's accommodation to discrepant events by programming a series of experiences, by drawing on past experiences, and by focusing attention through verbal instruction and exposition on selected aspects of his environment. In order to be effective in doing this, however, it is important for the teacher to be reasonably well acquainted with the existing conceptual structures of the learner and to keep a constant check on the conceptual modifications that are taking place at every step along the way. This is of course very difficult even when the teacher-pupil ratio is one-to-one. It of course becomes more difficult as the number of pupils increases.

When the mode of learning is inquiry, however, the process of data gathering, analysis and experimentation is under the control of the learner himself. He is free to reach out in whatever direction he chooses for data and to gather this information in whatever sequence is most meaningful to him. Through inquiry, the learner influences and actually programs his own learning in terms of his own cognitive needs as dictated by his style of learning and his informational needs of the moment.³⁰

²⁸Waetjen, op.cit., p.43.

²⁹J.R. Suchman, "The Child and the Inquiry Process," in A.H. Passow and R.R. Leeper (Eds.), Intellectual Development: Another Look. (Washington: Association for Supervision and Curriculum Development, 1964).

³⁰Ibid., p.61.

While agreeing with Suchman that the former approach would be extremely difficult, the writer sees it as facilitating the optimum employment of the inquiry mode referred to by Suchman. To ensure that the process of data gathering, analysis and experimentation is indeed "under the control of the learner," the teacher must be as "well-acquainted" as is possible with the learner's existing conceptual structures. Assurance that an inquiry mode is optimally employed will require that irrelevant and inappropriate materials must not be permitted to interfere substantially with the learning situation in which the child is engaged. Knowledge of those materials and situations that are inappropriate and irrelevant requires of the teacher a knowledge of the child's existing conceptual structures.

However, Suchman is not readily inclined to dismiss "engineered learning" as is indicated in the following statement:

It is well known that you can get a child to become aware of a relationship or principle by exposing him to enough situations where the principle is operant. In time he will abstract the concept or generalize over the experiences. If the instances are carefully selected, one can guide or engineer the discovery of new relationships.³¹

Although, in his discussion of research conducted by Smedslund, who

. . . tried to determine whether the emerging concept is different in the one case in which it results from a simple generalization drawn from a set of positive instances and in the other case in which it is the end product of a series of conceptual reorganizations,³²

Suchman concludes that the "less-directed series of operations to arrive at a given concept" might be preferable to a "carefully pro-

³¹Ibid., p.66.

³²Ibid., p.67.

grammed set of experiences."³³

Smedslund found:

. . .that concepts that are easily formed by simple generalizations are more readily discarded when data are discrepant to the concept. But when the concepts result from the resolution of conflicts in successive accommodations as in the normal course of conceptual growth, a conceptual structure is not easily given up even in the face of a heavy weight of discrepant data.³⁴

And according to Suchman:

This suggests certain weaknesses in any learning situation in which the conceptual increments toward each new structure are pre-programmed for speed and ease of learning. It almost seems that when conceptual structures are formed by outside agents that obviate the learner's own accommodative struggles, the new concept is not hard-won or self-structured. It is less a part of the learner, less useful to him (Festinger, 1957). He is therefore more willing to relinquish the concept if new data challenge its validity.³⁵

But Suchman's argument against "engineered learning" breaks down, it seems, given the following statement:

The step-by-step path toward conceptual growth is typical of most teacher-directed learning. The primary objective is the attainment of a new concept. This attainment is engineered by starting with the familiar and moving with or without discovery toward the unfamiliar with the purpose of assimilating this in the framework of existing structures. The assumption is that all learners begin with conceptual structures and cognitive styles that are enough alike to permit a standard sequence of operations (or lesson plan) to bring them to the same level of conceptualization.³⁶

One should argue, as Suchman implies, against such notions as "a standard sequence of operation" and "the same level of conceptualization."

One should argue for an "engineered" approach which is tailored to meet the intellectual requirements of each individual. As Suchman

³³Ibid., p.68. ³⁴Ibid., p.67. ³⁵Ibid., p.68. ³⁶Ibid.

notes, "children's conceptual models differ enormously in structure," and thus:

If the child is going to reorganize his concepts. . . he will have to be able to proceed from where he is and not from some hypothetical point of ignorance. He must have the opportunity to try out his conceptual models by using them to design experiments and make predictions. He must be free to gather the data he needs to resolve his cognitive conflicts until he has evolved a conceptual system that lets him assimilate what he sees. In short, a realistic approach to conceptual growth must allow the learner to gather and process data in accordance with his cognitive needs of the moment, and this suggests he should be utilizing some form of inquiry.³⁷

As there are several search and concept attainment strategies for a group of children, the implications relating to the kinds of materials and learning situations to be made available for the child are truly enormous. But if the educator is to cease paying lip-service to the notion of individualization of instruction, this problem must be faced. The Inquiry Training Project with which Suchman was involved was one such attempt. The writer here wishes merely to relate a few comments made with respect to the implications for curriculum. Suchman writes:

What has impressed us most in our observation of the inquiry process is that the autonomy of the learner has enormous importance for both motivation and conceptual growth. Take away from the child the element of choice in the learning process and you destroy one of the most potent forces for keeping the child involved in learning and for giving him an opportunity to influence the course of his own learning

 If he is not given an opportunity to modify and at least to some extent to direct his own data intake, his learning experiences may well miss the mark by a wide margin.³⁸

And further Suchman notes:

³⁷Ibid.

³⁸Ibid., p.75.

There would be three and possibly more by-products . . .
First there would be the development and strengthening of the
inquiry process itself.

.
A second by-product would be the self-image that would
develop in the children as a result of a greater autonomy in
learning. The children would emerge with a sense of intel-
lectual potency and a faith in the regularity of the universe
and a greater skepticism toward any explanatory system as a
final and ultimate truth.

.
A final consequence of such a curriculum would be the
development of a greater depth of understanding of principles
and concepts within the disciplines of study relevant to the
problems posed for inquiry.

.
In Bruner's terms he will penetrate the structures of the
disciplines concerned and become rather intimately involved
with some segments of those structures. Finally, the inquiry
centered curriculum would break away from the rhetoric of
conclusions which now dominates so much of the curriculum
and would put the process and products of scientific inquiry
back into their proper relationship.³⁹

As Bruner notes:

A theory of instruction would probably have three aspects.
The first would be concerned with the optimum experiences
that predispose the learner to learn. The second would deal
with the kinds of structures in terms of which information
or knowledge is optimally organized by a learner. The third
would inquire into the sequences of encounter with materials
to be learned that would be optimal.⁴⁰

Innumerable articles have been written in recent years that
render little more than repetition to this discussion. Writers such
as Bruner and Suchman are to be commended for translating the findings
of psychology into curricular proposals that bear witness to their
intimate concern for the child's intellectual fulfilment. Suchman's

³⁹ Ibid., p.76.

⁴⁰ J. Bruner, "Introduction: The New Educational Technology," in
Alfred de Grazia and David A. Sohn (Eds.), Revolution in Teaching: New
Theory, Technology, and Curricula. (New York: Bantam Books, 1964).

later article⁴¹ represents a fascinating extension of the notions expressed above. His assumptions relating to the nature of the human as a "perceiving-thinking-acting organism" should be the fundamental focus of our thinking when concerned with the development of curricula. One again wonders: Is this Dewey writing again in 1970? But the writer here wishes to develop the theoretical parameters of the nature of this focus from a point of view not explicitly dealt with by any author, so far as the writer is aware. To introduce this attempt, one is moved to quote further from Suchman. He writes:

Inquiry can be thought of as the most natural and fundamental learning mode. The infant is an inquirer long before he becomes anybody's pupil. Intervention and teacher-guided learning represent departures from pure inquiry. There are obvious reasons why education should not prevent the teacher from intervening in the learning process to influence the course of cognitive growth. But the role of the teacher as the programmer of learning must be shifted if the motivational and cognitive advantages of inquiry are to be obtained in the process of education.⁴²

Speaking in practical terms, Suchman indicates, as a necessary change in the role of the teacher, the need to develop:

. . . a heightened sensitivity to individual differences in conceptual structures, cognitive style, motivational patterns, and the amount and type of stored data. The more the teacher knows about his pupils in these respects, the more effectively he can create the optimal conditions to stimulate and sustain the autonomous search for meaning.⁴³

Given the viability of these thoughts, one must conclude that

⁴¹J.R. Suchman, "The Pursuit of Meaning: Models for the Study of Inquiry," in E.M. Bower and W.G. Hollister (Eds.), Behavioral Science Frontiers in Education. (New York: John Wiley and Sons, 1967).

⁴²Ibid., p.496.

⁴³Ibid., p.497.

the focus of the development of curricula should be directed from an understanding of the child's intellectual facility.

II. THE FOCUS OF THE PEDAGOGICAL CONTEXT

Using the discipline of economics as the frame of reference, a highly significant objective that faces the teacher is that which relates to the catering to differences in intellectual ability of a group of students with regard to their mastery of economic concepts. There arises, therefore, the need to identify as accurately as possible the degree of difficulty that each student can cope with--on each fundamental concept--before each student becomes involved in a formal learning situation. Mastery of a concept in a formal learning situation is, by necessity, a function of the degree to which the materials and strategies employed are appropriate to the level of prior mastery possessed by the student. Decisions regarding the materials and teaching strategies to which the student should be introduced necessarily involve an evaluation of the student's level of prior mastery. The following hypothetical case illustrates the scope of the task of identifying the level of prior mastery of five fundamental concepts in a subject for one student.

For example, let "exploratory item" refer to an item on an initial instrument designed to give the researcher a *prim facie* indication of a student's ability to correctly respond to a question relating to a fundamental economic concept. Assuming that a correct response is elicited, then that item might indicate the degree of difficulty at which the student is able to operate within the context of that concept. An indication of a type of item to be used on an

exploratory instrument appears in the Appendix. However, the student may be able to respond to more difficult items. Therefore, items that extend over a range of difficulty must be developed and validated⁴⁴ so that an indication of the student's level of mastery, as shown by correct responses, may be determined. Accordingly, the most difficult item for which a correct response is elicited, is, *prima facie*, the level of prior mastery with regard to that concept. Such an instrument therefore would enable the teacher to determine, again only in a general sense, some insight into the nature of the cognitive structure of each child, so far as it relates to the processing of the stimuli of the economic world.

Figure 16 illustrates the nature of the steps to be taken in determining the student's level of prior mastery for concept No.1.

Apart from the extreme right-hand column, the Figure relates to one student. Given five fundamental concepts, the researcher develops exploratory items. Administration of these items elicits correct responses in the case of concepts Nos.1-3. The researcher, then, might conclude that (in terms of the nature of these items--be they mathematical, verbal or graphic) for this student there is no need to develop items that are less difficult than that of exploratory item A.

⁴⁴It has been assumed that the L.P.M. instrument will meet the standard requirements before it may be referred to as being validated. Such requirements, of course, would include the consensus of agreement on the part of a panel of judges, with regard to (i) the choice of items, (ii) the substantive nature of the items, (iii) that response to each item which is to be considered correct, (iv) the required number of items, and, (v) the discriminative power of each item.

| CONCEPT NO. | STUDENT (S1) | | | | STUDENT | | |
|----------------|---------------------|----------------------|---|--|-----------------|----------------|-----------------|
| | EXPLORATORY ITEM | CORRECT RESPONSES | RANGE OF L.P.M. ITEMS | CORRECT RESPONSES TO RANGE OF L.P.M. ITEMS | L.P.M. | (S2) | |
| | | | | | | L.P.M. | (S3) L.P.M. |
| 1 | A | + | A ¹ A ² A ³ | A ¹ A ² | A ² | A ³ | A ⁷ |
| 2 | B | + | B ¹ B ² B ³ | B ¹ B ² B ³ | B ³⁺ | B ³ | B ⁻¹ |
| 3 | C | + | C ¹ C ² C ³ | C ¹ C ² | C ² | C | C ³ |
| 4 | D | | D ⁻¹ D ⁻² D ⁻³ | D ⁻³ D ⁻² | D ⁻² | D ⁴ | D ⁻¹ |
| 5 | E | | E ⁻¹ E ⁻² E ⁻³ | E ⁻³ E ⁻² E ⁻¹ | E ⁻¹ | E ² | E ³ |
| | | | | | | | A ⁻¹ |
| | | | | | | | B |
| | | | | | | | C ⁶ |
| | | | | | | | D ² |
| | | | | | | | E ¹ |

FIGURE 17

THE DETERMINATION OF THE STUDENT'S LEVEL OF PRIOR MASTERY

NOTE: L.P.M. = level of prior mastery; the positive superscripts to each of the letters A to E indicate the relative positions of the items in a range of difficulty. The negative superscripts indicate the relative positions of the items in a range of difficulty extending to -3, it being the most simple of the items. The item without a superscript represents a more or less base level of difficulty and which is arrived at after an analysis of a randomly administered exploratory device.

However, progressively more difficult items such as A^1 , A^2 , and A^3 should be developed. The task of the teacher, then, is to administer L.P.M. items in the initial stages of the formal learning situation in order that she may determine the level of difficulty at which each child seems to be operating with respect to the particular concept mastery being evaluated. In this sense she is determining, to some extent, the degree of complexity of each child's cognitive structuring process. Observations relating to cognitive style may also be made. If the child responds correctly to L.P.M. items A, A^1 , and A^2 but not to A^3 , then prime facie, item A^2 is indicative of the level of difficulty at which the child is capable of operating with respect to concept No.1. Thus the teacher has some prior indication of the required degree of difficulty (the ascription of which is certainly not an easy task) of those materials and teaching strategies which are to be chosen for this child.

For concept No.2, for this same child, a greater degree of difficulty would seem appropriate, given his responding correctly to all the L.P.M. items. And for concept No.3, this same child is capable of handling another degree of difficulty (C^2). The right hand column indicates that for students 2, 3 and 4, quite different levels of difficulty have emerged through the process of prior evaluation. Student No.4, for instance, on concept No.1 must have initially failed to respond correctly to the exploratory item A. When L.P.M. items A^{-1} , A^{-2} , A^{-3} and A were developed, student No.4 was able to respond correctly to A^{-3} , A^{-2} , A^{-1} .

So far as concepts No.4 and 5 are concerned, the initial exploratory items D and E failed to elicit correct responses, and so L.P.M.

items over the range of difficulty $D-D^{-3}$ and $E-E^{-3}$ were developed by the researcher. Upon administration, the teacher found that correct responses were elicited, as indicated in the column headed "Correct Responses to Range of L.P.M. Items." Thus, for this student, the levels of prior mastery relating to concepts Nos. 4 and 5 were indicated by the degree of difficulty of L.P.M. items D^{-1} and E^{-1} . Again, students Nos. 2, 3, and 4 recorded different levels of difficulty in coping with fundamental concepts Nos. 4 and 5.

On the basis of this case, therefore, materials and learning strategies that relate to concept No. 1, for instance, should be pitched at a level A^2 for student No. 1, at a level A^3 for student No. 2, at a level A^7 for the "very bright" student No. 3, and at a level A^{-1} for student No. 4. On the face of it, a range of materials (in terms of levels of difficulty) $--A^{-1}-A^7--$ will appear to be unnecessary to cater to the individual differences of these four students. It seems that only four sets of materials are necessary, if the condition that the materials should be appropriate to the level of prior mastery is to be met. Such a suggestion implies that a level of mastery is a rather static entity. On the contrary, the materials and strategies must incorporate a means by which the levels of the mastery of the concept may be extended. Student No. 1, therefore, will be involved in the initial stages of the learning situation, with materials that embody an A^2-A^3 level of difficulty range. Thus, for the four students, the range $A^{-1}-A^7$ will be insufficient. Yet, without the use of an L.P.M. instrument, the teacher is inadequately prepared in attempting to meet the condition that materials

and strategies at least approximate--in terms of their levels of difficulty--the levels of prior mastery possessed by the students as individuals.

III. THE NATURE OF THE RESEARCH TASK

The collection and classification of a pool of explanatory items will be an extensive task requiring the expenditure of a great deal of resources. As more and more exploratory items per concept elicit an increasing percentage of correct responses, the basis for the L.P.M. instrument should be determined. The L.P.M. instrument would include a range of items and/or tasks that would enable the teacher to determine the extent of the student's ability to process problems that show a high correlation to problems involving the basic concepts that make up the structure of the discipline of economics. One is loathe to recommend that a "standard" L.P.M. instrument be the outcome of all this initial testing, especially if it is likely that the "standard" will become too broad and pervasive a referent for different school systems. To the extent that adherence to a pervasive standard has, in the past, become the prime objective, so, too, has the purpose of the instruments used been ignored. For instance, as Bloom⁴⁵ has noted, the preoccupation with a so-called "normal curve" has emphasized that a certain percentage of the class will not be able to reach the "standard." The "standard" in such a case has emphasized a "normal distribution" per se as the referent. Rather, the appropriate instruments should provide data upon which an inferred standard is capable of being translated into a number of

⁴⁵B.S. Bloom, "Learning for Mastery," in Evaluation Comment (Vol. 1, No.2, May, 1968).

referents that in turn are capable of being applied to the instructional program of each child as an individual. Bloom notes:

There is nothing sacred about the normal curve. It is the distribution most appropriate to chance and random activity. Education is a purposeful activity and we seek to have the students learn what we have to teach. If we are effective in our instruction, the distribution of achievement should be different from the normal curve. In fact, we may even insist that our educational efforts have been unsuccessful to the extent to which our distribution of achievement approximates the normal distribution.⁴⁶

Thus the teacher is encouraged, also, to conduct classroom research, and build up a pool of items that take consideration of those factors and characteristics peculiar to the children with which she is concerned. In particular, unique cultural backgrounds should be considered by the teacher for the purposes of tempering a "model" L.P.M. instrument. The point of the L.P.M. instrument is not that a segregation of students will result, but rather that all students will correctly respond to at least one item per basic concept, thus indicating, *prima facie*, to the teacher the nature of the materials and teaching strategies that would be most appropriate for each student. One should emphasize that the indication should be considered only as being *prima facie*, since even a correct response to an item that is absolutely valid (in terms of its testing of a basic economic concept) should not indicate to the teacher that a set length of time should be devoted to involving the student with appropriate materials and teaching strategies. There should be programmed into the materials-bank problems designed to encourage inquiry, the correct response to which would

⁴⁶Ibid., pp.2-3.

indicate the continued refinement of the child's handling of the concept. In turn these correct responses would assist the teacher in navigating the child into more difficult and, therefore, more appropriate materials. In essence such a learning environment is analogous to the branching technique used in programmed materials.

To further explain this point, the following two Figures have been employed.

| Item Difficulty Range | | Correct Response |
|-----------------------|---|------------------|
| Concept No.1 | A | + |
| | B | + |
| | C | + |
| | D | |
| | E | |

L.P.M.*

FIGURE 18

THE VALIDATED L.P.M. INSTRUMENT: CONCEPT NO.1, STUDENT X

*L.P.M. = level of prior mastery.

As indicated in Figure 18, student X has elicited correct responses to items A, B, and C on the validated L.P.M. instrument designed to determine the student's ability to cope with concept No.1. For this student, then, the level of prior mastery of the concept is functionally related to the level of difficulty indicated by item C. For this student, the learning situation, so far as concept No.1 is concerned, might be schematically represented by the following diagram.

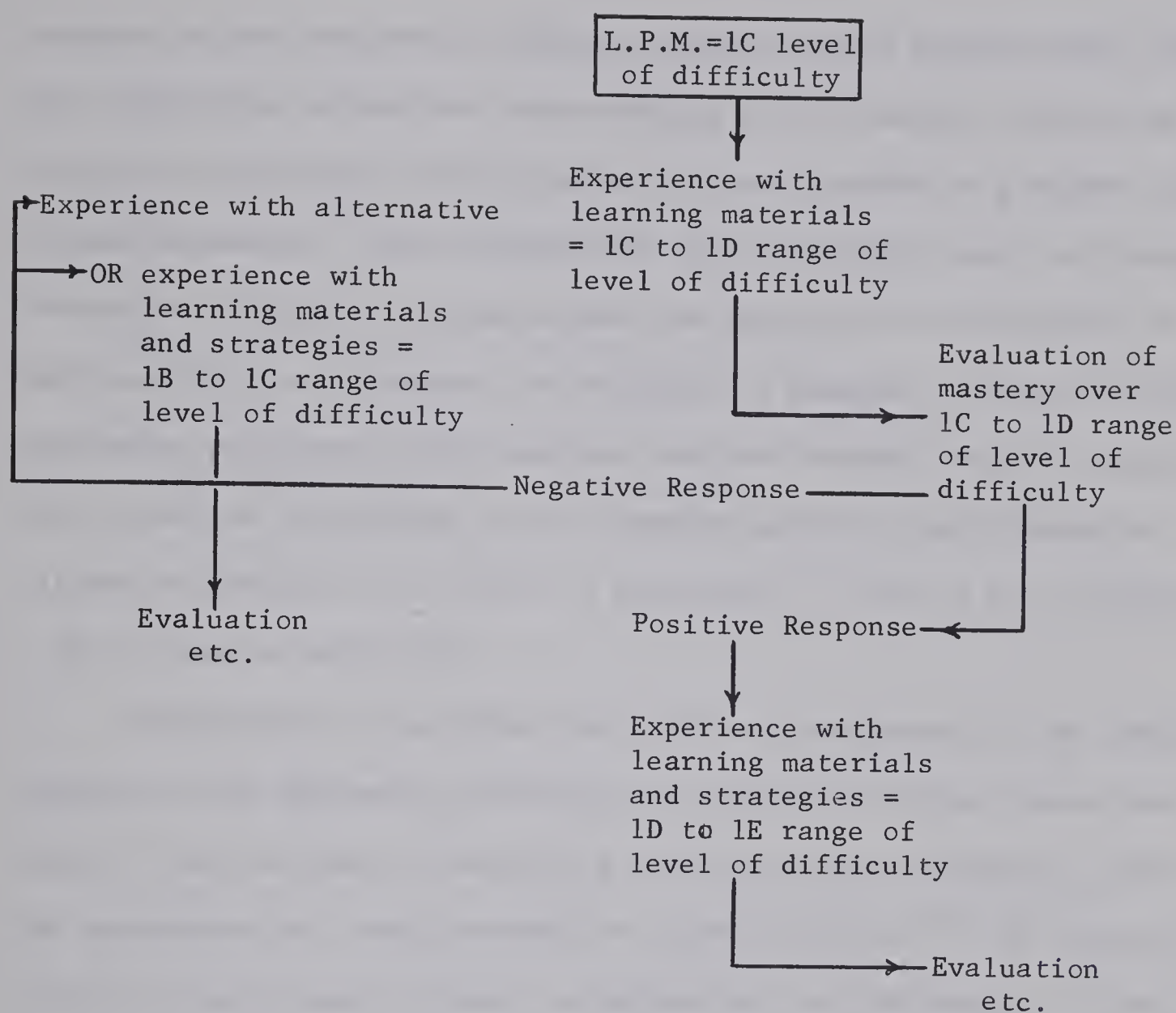


FIGURE 19

L.P.M. AND THE LEARNING SITUATION

CONCEPT NO.1, STUDENT A

Given an L.P.M. commensurate with the difficulty of item C, the student then becomes involved with materials and strategies pitched at the appropriate level of difficulty. Programmed into those materials and strategies are problems designed to evaluate the student's progress with the refined concept No.1 (not in the form of a separate "end-of-the-week" test, but intrinsic to the learning situation itself). A positive

response to the evaluative technique employed would indicate that indeed the student has refined his understanding of the concept. And so he is directed to materials and strategies that are pitched at a higher level of sophistication. Into the materials and strategies also are programmed evaluative techniques to ensure that the indication of refinement of understanding, or otherwise, is on-going. A negative response to the evaluative procedures would indicate that the student requires experience with either an alternative set of learning materials and strategies pitched at the same 1C-1D level of difficulty, or with a set pitched at a 1B-1C level of difficulty.

Theoretically the notion is sound, and subsequent to the formulation of this approach, the writer was reinforced in his conviction that indeed it may be sound, from both a theoretical and a practical sense, by the expression of a similar model by Lindvall and Cox.⁴⁷ An extensive review of their model follows, in particular, for the purpose of emphasizing that a trend appears to be developing along the lines suggested in the present study.

For Lindvall and Cox, the term "evaluation" is used to refer to two different procedures. They use the term to apply firstly to a "procedure for gathering pupil data to use in planning and monitoring pupil programs," and secondly, to a "procedure for gathering and analyzing data in such a way that it leads to improvements in materials and

⁴⁷C.M. Lindvall and R.C. Cox, "The Role of Evaluation in Programs for Individualized Instruction," Educational Evaluation: New Roles, New Means, 68th Yearbook of the National Society for the Study of Education, Part II, edited by Ralph Tyler. (Chicago: University of Chicago Press, 1969).

in the instructional system."⁴⁸ Following a review of such models for the evaluation of instruction as the Winnetka Plan and the Eight Year Study, the authors outline the elements of the structured-curriculum model for individualized instruction. Lindvall and Cox note that:

Basically, the structured-curriculum model for individualized instruction involves the following elements:

1. Sequences of instructional objectives to define the curriculum
2. Instructional materials to teach each objective
3. An evaluation procedure for placing each pupil at the appropriate point in the curriculum .
4. A plan for developing individualized programs of study
5. A procedure for evaluating and monitoring individual progress.⁴⁹

Schematically, their model appears as shown on the following page. With respect to each aspect of their model the authors make the following comments. Concerning the notion of "placement tests":

One of the first diagnostic requirements for an individualized system is the placement of each pupil in a learning continuum at a level which is commensurate with his performance level. It would be wasteful to have the pupil assigned to a unit of instruction which he had already learned, while, on the other hand, it would be frustrating for the pupil to be given an assignment for which he did not have the necessary prerequisites and which, therefore, he could not accomplish. What is required is a type of placement measure that is criterion-referenced and that will provide the information about the performance level of each pupil that enables the teacher to determine the appropriate place for assignment in the curriculum.⁵⁰

This feature is akin to the administration of the L.P.M. instrument discussed in the present study. Like the responses to the items on the L.P.M. instrument:

The major function of the placement measures is to provide a general profile of individual pupil performance over many units of work. What is being suggested is that placement

⁴⁹Ibid., p.161.

⁵⁰Ibid., p.169.

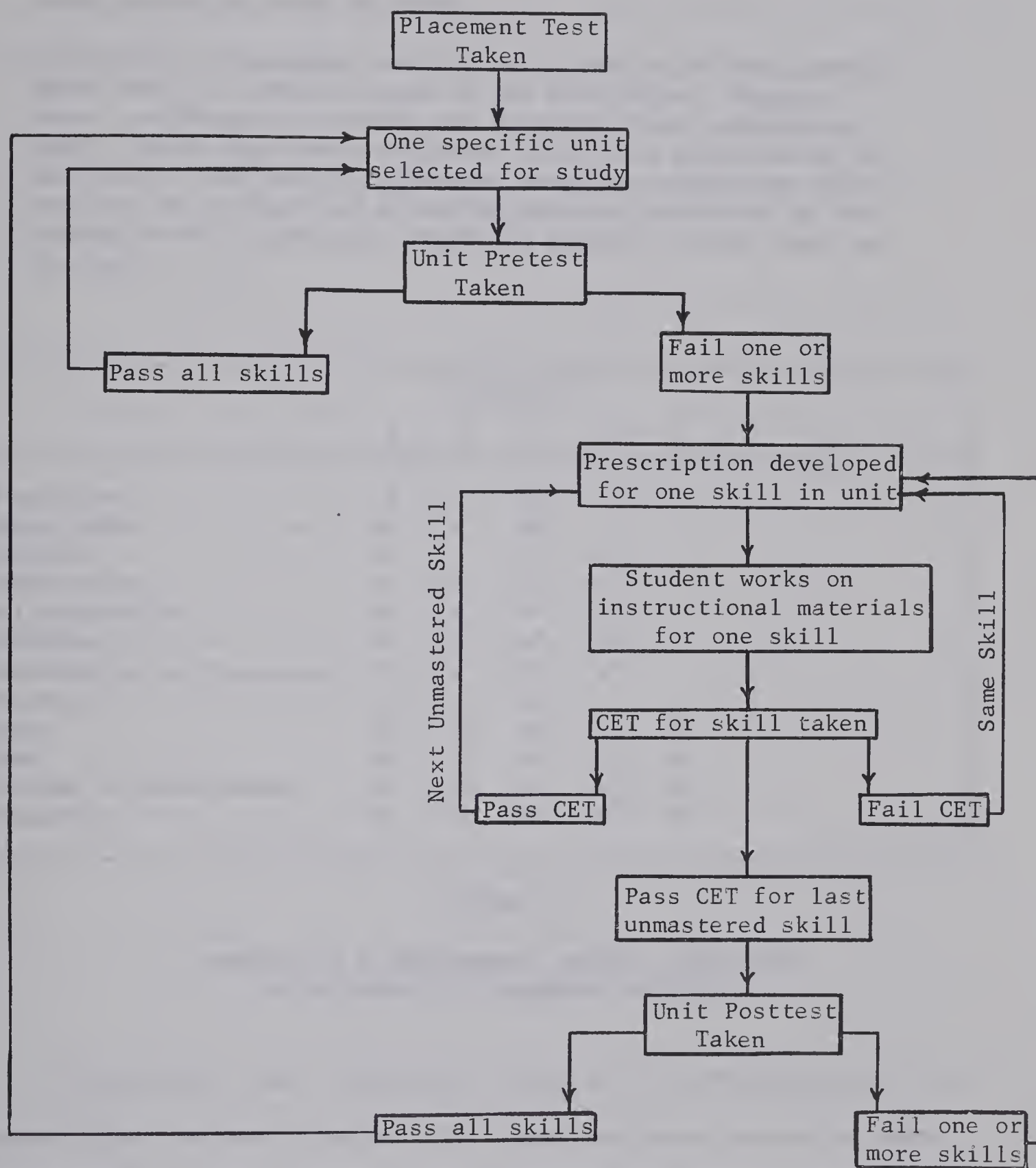


FIGURE 20

FLOW-CHART OF STEPS IN THE CYCLE FOR EVALUATING AND MONITORING OF PUPIL PROGRESS IN THE IPI PROCEDURE⁵¹

⁵¹Ibid., Figure 3, p.179.

tests should be broad in scope.

The result of placement testing is a profile of pupil performance over all content areas of the curriculum. Figure 2 shows a mathematics profile for a hypothetical third-grade pupil. Each check mark indicates successful performance in that unit. The pupil's placement tests are scored in such a way that he is reported as having mastered each area at the highest level at which he exhibited mastery of the items on the test.

| | Student A | | | | | | | |
|--------------------------|-----------|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H |
| Numeration | ✓ | ✓ | ✓ | | | | | |
| Place Value | ✓ | ✓ | ✓ | | | | | |
| Addition | ✓ | ✓ | ✓ | ✓ | | | | |
| Subtraction | ✓ | ✓ | ✓ | ✓ | | | | |
| Multiplication | ✓ | ✓ | ✓ | ✓ | | | | |
| Division | ✓ | ✓ | ✓ | ✓ | | | | |
| Combination of Processes | ✓ | ✓ | ✓ | ✓ | | | | |
| Fractions | ✓ | ✓ | ✓ | | | | | |
| Money | ✓ | ✓ | ✓ | ✓ | ✓ | | | |
| Time | ✓ | ✓ | ✓ | ✓ | ✓ | | | |
| Systems of Measurement | ✓ | ✓ | ✓ | ✓ | ✓ | | | |
| Geometry | ✓ | ✓ | ✓ | ✓ | ✓ | | | |

FIGURE 21

EXAMPLE OF A PERFORMANCE PROFILE INDICATED
BY MATHEMATICS PLACEMENT TESTS⁵²

Essentially, this hypothetical case and the one developed in the present study are very similar. One important point should be emphasized however. Such a test in the field of economics should recognize that the student may have acquired mastery over a particular concept, and yet lack the ability to express that understanding through the use

⁵²Ibid., Figure 2, p.174.

of the formal language of the discipline. For instance, the student may understand the concept of, say, price as it is influenced by demand, and yet he may not demonstrate such understanding, should the question be framed in formal terms--the terms most likely used in the curriculum outline. Thus a correct response to the item on the test that is appropriately framed will indicate mastery over the concept. But such a result of testing should not be taken to mean that the student should bypass altogether that concept over which he has demonstrated mastery. For this reason, the formal learning situation should be initially concerned with that level of mastery, rather than immediately proceeding to the next level of difficulty relating to that concept. Figure 19 on page 140 emphasizes this point. Lindvall and Cox, it seems, give the impression that the next level of difficulty is to be the immediate concern of the teacher.

Proceeding to the next aspect of the model developed by Lindvall and Cox, we may note what amounts to being essentially the only difference between their model and that developed in the present study. After the selection of one specific unit of study, the student takes a pretest on the content of that unit. Such a diagnostic unit-test is designed for the purpose of planning the individual's program. The authors note:

The pretests point out, once again, the individual aspect of the theoretical model. Not every pupil who is about to start on a given instructional unit will necessarily be required to go through the sequence the same way. Pretesting aids the teacher in providing an instructional task which is appropriate for each individual.⁵³

⁵³Ibid., p.175.

With regard to the L.P.M. instrument, the writer would argue that it would specifically evaluate the objectives of the course, and be so extensive as to meet the requirements of placement and pretesting, aspects of prior evaluation that Lindvall and Cox have preferred to separate into two different testing procedures.

The remainder of their model is basically the same as that developed in the present study except that Lindvall and Cox have distinguished between "units of study" and specific "skills." Each unit is divided into a number of skills whereas the present study has referred to specific concepts. Facility with the concept is determined by the extent to which the student can demonstrate facility with the skills that incorporate that concept. Certainly one could refer to a cluster of concepts that are related in a way, such that they amount to a logical unit of study, and such a notion as a "specific unit" would be valuable for planning purposes. If all the skills incorporated within the specific unit are within the demonstrated capabilities of the student, then the next unit of study is approached. If, however, the student fails to demonstrate facility, he embarks upon a complementary program. Such a program will be akin to the branching technique employed in computer-assisted instruction. Whether in the basic or the complementary (or remedial) program, the design will be such that the student's progress will continue to be monitored through the use of various evaluative techniques. Again, Lindvall and Cox see the need for two testing procedures; namely, the "curriculum-embedded test (CET)" and the "postunit test."

Reference was made in the writer's model to the need to program evaluative techniques into the learning situation. Such a notion is identical to the CET. Again the writer would maintain that the pool of results forthcoming from such procedures would be so specific as not to necessitate the extra postunit test proposed by the authors. Of the CET the authors write that it:

. . . is a measure of performance on one particular objective in the sequence. It is used to assess performance on the skill stated in the objective so that the teacher has information with which to make a decision to advance the pupil to the next objective or to assign additional instructional exercises for the same objective. A CET will be prescribed for each pupil at specified intervals in the sequence of instructional materials for the objective.⁵⁴

As in the authors' model, the writer has indicated the need to provide different routes according to whether the child passes or fails those tasks (as tested by CETs) built into the learning situation. A positive response would indicate that the student has refined his understanding of the concept (or unit skill) to the point whereby more difficult materials and teaching strategies become appropriate. A danger to be avoided is the apparent (from the child's viewpoint especially) emphasis upon testing procedures. By concentrating upon the use of the L.P.M. instrument (or a combination "placement" and "preunit test") and those devices programmed into the learning situation itself (the "CET" and the "postunit test"), the teacher will achieve the efficiency in testing referred to by Lindvall and Cox.

One might charge that there is little here that is new. Indeed,

⁵⁴Ibid., p.177.

many of the particular notions are standard topics in educational literature dating back many years. The Winnetka Plan was reported as far back as 1925. But, as the authors note:

The reader should recognize, however, that the use of placement tests, unit pretests, curriculum-embedded tests, unit posttests, and prescriptions as described in this chapter are somewhat unique to IPI.⁵⁵

Computer-assisted instruction is a recent demonstration of the practical effectiveness of the theory here outlined. The Bucknell Continuous Progress Plan⁵⁶ is another example of individualized instruction at the college level, and Project PLAN, developed by the Westinghouse Learning Corporation,⁵⁷ is also discussed by the authors within this context.

Summary

The need for constant referencing back to the philosophical foundation of the curriculum is amply demonstrated by Biber⁵⁸ in her discussion of a segment of Senesh's program for the teaching of economics.

Regarding the concept of division of labour, Senesh has proposed a task involving the production of ginger-bread men. Biber writes:

Those who feel that children should be given opportunities to experience work as gratifying self-investment, to gain mastery over complexity, and to value variation more than uniformity would consider more to have been lost than gained in the assembly line production of gingerbread men. Is the assembly line mode of production in our economy the 'real and

⁵⁵ Ibid., p.181.

⁵⁶ Ibid., p.183.

⁵⁷ Ibid., p.184.

⁵⁸ B. Biber, "A Learning-Teaching Paradigm Integrating Intellectual and Affective Processes," in Eli M. Bower and William G. Hollister (Eds.) Behavioral Science Frontiers in Education. (New York: John Wiley and Sons, Inc., 1967).

important' material for first graders? Is efficiency of production, which it represents, a goal around which work experiences for children should be organized? The fact that by such devices young children can grasp this and many other abstract concepts is insufficient criterion for judging whether these experiences are suitable, optimal rather, for a given stage of development.⁵⁹

Biber's point is germane when one considers that schools often take up the employment of such programs without prior consideration of the likelihood that the philosophical foundation of that program may be inconsistent with that of the school itself. From Senesh's point of view the task outlined above is most likely consistent with the philosophical foundation of his program. But, one should ask, is it consistent with that of a school program in systems elsewhere, and particularly in other countries? Biber's questions, it seems, are directed to this notion.

Biber's concern is stated well with respect to the quality of teaching required in the new curriculum ventures that emphasize inquiry, discovery and curiosity. She writes:

The teaching role envisaged here constitutes much more than an intellectual shift. It requires the capacity to empathize with the mental processes of young children, to deal without anxiety with the ambiguity necessarily associated with exploration search patterns rather than right-wrong paradigms, to deal with variations not only in rate of mastery but in cognitive style, and thus to carry a multiple series of evaluative criteria by which to judge when learning or teaching is being productive for different children.⁶⁰

If the philosophical context developed in the present study is to be faithfully adhered to, programs, materials and suggested teaching

⁵⁹Ibid., p.119.

⁶⁰Ibid., p.120.

strategies that have been developed elsewhere must be carefully scrutinized. By avoiding the prostitution of original intent, a greater measure of success in realizing those educational ends as are decided upon must accrue to the endeavours of the teacher. And if the teacher is consistently aware of the fact that it is for the child that we teach, that consistency of philosophical outlook must surely stand a greater chance of survival in the face of the many exogenous determinants that lobby for the attention of the child.

To recapitulate then, the present chapter represents an attempt to focus upon a logical extension of the positions taken in previous chapters. Given a commitment to an objective that emphasizes the refinement of the child's intellect, and given also our present knowledge of the intellectual capabilities of the 11-12 year old child, a curricular proposal must focus upon the evaluation of the individual child's ability to conceptualize. Within the context of a specific discipline, prior evaluation of the parameters of the child's facility with its basic concepts is essential if the teacher is to be able to develop a program that caters to that child's uniquely individual abilities. The writer has suggested that the teacher requires a more or less miniature portrait of the child's conceptual structure so far as it relates to the basic concepts of the discipline. Theoretically the L.P.M. instrument should be capable of providing the teacher with such data.

In order that the program be such that the individual is capable of continuing to refine optimally that conceptual structure, the data derived from the prior evaluation should assist the teacher with respect

to the nature of the materials and teaching strategies to be employed. Again, in order that the teacher be provided with a continuing supply of data to trace the course and qualitative change in the refinement of the individual's conceptual structure, evaluative techniques such as CETs should be programmed into each learning situation.

The child remains the focus of the learning situation, and data gathered with respect to the child's ability with the discipline become the data upon which curricula are developed. By maintaining such a focus, especially through a constant and consistent referencing back to the philosophical framework decided upon, the educator, it would seem, will have employed an evaluative technique that may enable that educator to counter more effectively those determinants that are exogenous to the refinement of the child's intellect.

CHAPTER VI

CONCLUSIONS AND RECOMMENDATIONS

Given a commitment among those concerned with the development of curricula to the establishment of a series of learning environments that cater to the refinement of the child's intellect, it is incumbent upon those involved--and in particular the teacher--to be conversant with the connotations that apply, in the consensus of opinion, to the concept of the intellect. In the present study, that task was initiated through a discussion of the concept from a philosophical point of view. It was concluded that the disciplines of knowledge developed by man to order his experience with his many environments were in effect systems of symbols that incorporated the means by which randomness may be assigned order. As bodies of knowledge, the disciplines are more than mere pools of information. The accumulated knowledge was brought into being--into a form understood by man--through the application of scientific and philosophical inquiry techniques.

The disciplines are a product of man's ability to engage in analytical thinking. Given that the intellect is characterized by assigning to it that ability to engage in analytical thinking, it was concluded that a psychological context should be developed to make explicit the nature of analytical thinking. Three theoretical approaches were discussed, and on the basis of certain criteria, the Piagetian approach to the study of thinking was adopted. It was concluded, on the basis of those criteria that characterize scientific inquiry, that, for

the purposes of evaluating the design of curricula, each of the three theoretical approaches to the study of thinking was found wanting. On the basis of the assessment, it was concluded that the blind use of one theoretical approach was to be avoided. That approach which is chosen (in the case of the present study, the Piagetian approach) should be buttressed with the findings of other theoretical and empirical formulations. It is, however, important to screen those other approaches with regard to their being consistent with the basic philosophical framework decided upon at the outset.

On the basis of the philosophical and psychological contexts developed, it was concluded that the constructs upon which economics programs in schools in Victoria (Australia) were based were such that underlying premises are suspect. In the first place, the educational end of intellectual pursuit is accorded very low priority. Secondly, the philosophical constructs that are given high priority are wrought with inconsistencies. Thirdly, virtually no attempt has been made to develop an argument that recognizes the cognitive abilities of the child. Those loose references that are made ignore the major findings of psychologists, and in particular Piaget's finding that the 11-12 year old child is on the threshold of the ability to engage in abstract reasoning.

Finally, it was concluded that in order to be consistent with the theme developed in accordance with the philosophical and psychological contexts, the pedagogical context must necessarily focus upon the individual child. The intellectual abilities of the child must be the

starting point from which a series of learning environments are to be developed. To this end a rationale for the development of an evaluative procedure was discussed. It was concluded that if the character of the intellect were to be understood in terms of the nature of the processes of cognition, then some prior assessment of the parameters of the child's cognitive map--so far as it related to the basic concepts of a discipline--would be necessary, if indeed the learning environments to be developed by the teacher are to be appropriate. To this end it was proposed that an instrument which measured the level of prior mastery of the basic concepts in economics should be developed. On the basis of the data gained after some exploratory research, it was suggested that such an instrument could be developed, and support for such a suggestion was outlined by reference to the considerations discussed by Lindvall and Cox.

From a study of this type, many recommendations for further research are obviously forthcoming. The following suggestions are, it is believed, fundamental to the development of a sound theory of curriculum design.

First, given that the teacher is focal to the curriculum design that recognizes the individual child as an intellectual entity, an analysis of teacher preparation requirements seems to be a fundamental piece of research. In particular, a study should focus on the extent to which student teachers are (1) given the opportunity to analyze the connotative and denotative meanings of philosophical constructs that have been popularized by educators, (2) instructed in the nature of

scientific inquiry, and, in particular, the nature of the task of relating the evaluation of a student's behavior to empirical referents, and (3) effectively encouraged to consider the purposes of education from alternative political standpoints.

Second, research activities should concentrate upon the means by which prior evaluation of the child's cognitive abilities and style might be achieved, and in such a way that the data derived might be readily translated into a means by which appropriate learning environments might be structured.

Third, given a commitment to the ideal of individualized instruction, the development of evaluative procedures by which the individual child's performance, as it becomes more refined through learning, might be measured against the prior levels of mastery demonstrated by the child, is essential.

Arising, also, directly out of the present study are those studies that relate to the elucidation of the structure of economics by a consortium of economists and educators. Particular attention should be given to the translation of economic theory into those terms that provide the greatest scope for the development of transcultural education. The ideal of educators that relates to objectives concerning a desire that international understanding might accrue to the student requires of those educators, whose area of study is economics, a somewhat less nationalistic outlook when it comes to curricular proposals. Analysis of economic theory from the perspective of the anthropologist is necessary in order that the conceptual framework of the discipline be such that the

bases of all economic systems are encompassed. Not only should such a conceptual framework be analysed from the point of view of the purposes of explanation of existing (and past) systems, but so should it be analysed from the point of view that transcultural changes and improvements might be perceived. In view of this recommendation, the work of Polyani requires of the educator, particular attention.

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APPENDIX

With regard to an exploratory study, the author has been concerned with the development of a pool of items from which to construct an instrument capable of differentiating levels of difficulty, on a very general scale, for a population of 11-12 year old children.

Ranging over 13 concepts selected from the fundamental ideas outlined by Senesh,¹ a pool of 61 items was constructed. Two judges were asked to (a) choose from all but one of the concepts one item which he felt was the "best" question for testing the concept; (b) choose from the section dealing with the concept "standard of living" six items which he felt were the "best" questions for testing the concept; and (c) choose the "correct" response for each of the 61 items.

Considerable disagreement among these two judges amply demonstrated the vastness of the task to be accomplished. However, the comments of each of the judges were such that the task was a necessary one, given the lack of empirical evidence available with regard to the extent to which the 11-12 year old understands the basic concepts of economics.

The following items are reproduced here to indicate the nature of the items contemplated by the author for use in an exploratory evaluative device and on the basis of which a L.P.M. instrument will be developed. These are the two items out of five for which there was substantial agreement on the part of the judges.

¹L. Senesh, "Organizing a Curriculum Around Social Science Concepts," Concepts and Structure in the New Social Science Curricula, I. Morrisett (ed.). New York: Holt, Rinehart and Winston, Inc., 1967, p.25.

RELATED CONCEPT: Unlimited wants and limited resources

Question: Australia has many resources and some of them are used to produce things that people are able to buy. But even though we want to buy many things, Australia does not produce enough of everything for everybody.

Indicate the main reason why Australia does not produce enough of everything for everybody.

1. People are not really interested in producing more goods.
2. People want more than could possibly be produced.
3. People do not need all that they want.
4. People could produce enough if they knew how to use the resources properly.

RELATED CONCEPT: Income dependent upon level of employment

Question: Imagine that the combined total earnings of all Australian workers in 1960 was \$1000 million, but now they receive twice that amount.

What do you think would be the main reason for the increase?

1. There are now twice as many workers in Australia because of the government's immigration program.
2. Australian workers save their money very carefully.
3. Many more jobs are now available and therefore the amount of money paid in wages has greatly increased.
4. Factory managers were worried about the number of people who did not have a job, and so they employed three or four people to do the job normally done by one person.

Even in the case of the items that were nominated by both the judges, suggestions were made with respect to the use of alternative possible responses.

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